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Energy and Water Development Approp...

S. HRG. 104–726

Senate Hearings

Before the Committee on Appropriations

Energy and Water Development Appropriations

Fiscal Year 1997

104*th* CONGRESS, SECOND SESSION

H.R. 3816/S. 1959

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DEPARTMENT OF DEFENSE
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NONDEPARTMENTAL WITNESSES

S. HRG. 104–726

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1997

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

ON

H.R. 3816/S. 1959

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1997, AND FOR OTHER PURPOSES

Department of Defense
Department of Energy
Department of the Interior
Nondepartmental witnesses

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1997

TUESDAY, MARCH 26, 1996

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:41 p.m., in room SD–138, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici and Gorton.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENTS OF:

PATRICIA J. BENEKE, ASSISTANT SECRETARY FOR WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR

ELUID L. MARTINEZ, COMMISSIONER, BUREAU OF RECLAMATION

ACCOMPANIED BY:

MARY ANN LAWLER, DIRECTOR OF BUDGET, DEPARTMENT OF THE INTERIOR

STEPHEN V. MAGNUSSEN, DIRECTOR, OPERATIONS, BUREAU OF RECLAMATION

ROBERT W. WOLF, CHIEF, PROGRAM, BUDGET, AND LIAISON GROUP, BUREAU OF RECLAMATION

RONALD JOHNSTON, PROGRAM DIRECTOR, CENTRAL UTAH PROJECT COMPLETION ACT OFFICE

OPENING STATEMENT OF PETE V. DOMENICI

Senator DOMENICI. The subcommittee will come to order. Sorry that I am late. We will try to be as accommodating as we can and not keep you exceptionally long today.

We will receive testimony today on the budget request of the Bureau of Reclamation followed by the Corps of Engineers. Patricia Beneke, Assistant Secretary for Water and Science, will you take the witness seat first. And I understand the Commissioner, Eluid Martinez, is with you. Would he join you there also.

Is there anyone else you would like to join you, Ms. Beneke?

Ms. BENEKE. Mr. Chairman, I would like to have Mary Ann Lawler, from the Budget Office, join us also.

Senator DOMENICI. Sure, of course.

Today, we begin the review of the 1997 budget, and in particular the request for the departments and agencies under the jurisdiction of the Energy and Water Subcommittee. I want to welcome each of you here and any members that might join us today Glad to have you.

As you know, the 1997 budget was received just 1 week ago. But in order to be able to produce an appropriation bill during this compressed and busy year, it is necessary to start our hearing process so that we can mark up a bill shortly after it is received from the House. I apologize for the short amount of time for both members and staff to review the budget submission.

This will be a year of great change for the Energy and Water Subcommittee. As you know, Senator Johnston and Senator Hatfield will be leaving and this is their last appropriations cycle. These two gentlemen, along with Congressman John Myers and Tom Bevill on the House Energy and Water Subcommittee, who will also be leaving at the end of the year, have carried the responsibility of these appropriations for some 20 years now, either as ranking member or chairman.

As I alluded to last year, their wealth of knowledge and expertise will not be replaced easily, if ever. So I want to personally and publicly acknowledge their contributions, extreme hard work, and value to the legislative process over the years. We are going to do our very best with the staff we have got to do as good a job as we possibly can under the circumstances.

If Senator Johnston comes to the hearing, obviously we will yield promptly to him. He is involved in some of the matters that are on the floor right now.

With that I propose that we hear the testimony of the Bureau of Reclamation, followed by the Corps of Engineers.

Let me suggest that we will get some questions from a number of Senators and we will submit them to you. There is no real quick turnaround, but why do you not just work with the committee staff. I would assume, that 2 weeks is enough time for you to get your answers in.

Let us proceed. Very good to have you here, Ms. Beneke. We have worked with you for a long, long time when you were on the Senate Energy Committee where you did an excellent job as you are doing for the executive branch. We are delighted to have you, and congratulations on your new position.

Please proceed.

STATEMENT OF PATRICIA J. BENEKE

Ms. BENEKE. Thank you very much, Mr. Chairman. It is good to be here. I will try to be brief today.

I am pleased to be here this afternoon to testify in support of the President's fiscal year 1997 request for the Bureau of Reclamation, and for implementation of the Central Utah Project Completion Act. Some of the preparation for the 1997 budget had already been completed when I began my tenure as Assistant Secretary. However, in subsequent stages Commissioner Martinez and I have worked closely together and with others in the executive branch to formulate a reasonable and responsible budget.

The request for the Bureau of Reclamation is $765 million, which is less than a 1-percent increase over the 1996 appropriations. Our priorities are: to provide adequate funds for the Operation and Maintenance Program, in order to ensure the safety and reliability of reclamation's existing facilities; to fund construction projects already underway in order to move them to completion and repayment status; and to provide funds to enhance new and existing partnerships with private and governmental entities to promote cooperative, effective stewardship of the West's water and natural resources.

CENTRAL UTAH PROJECT COMPLETION ACT

Because the Commissioner's statement will go into more detail on the Bureau's funding levels, I will now turn to our request for implementation of the Central Utah Project Completion Act. The fiscal year 1997 President's budget for titles II through IV of the act is $43.6 million, a $1.5 million decrease from the 1996 appropriation. The $25.5 million requested for use by the Central Utah Water Conservancy District is a $6.3 million increase over the 1996 appropriation. Construction of the Diamond Fork Pipeline will continue.

The $11.7 million requested for the Mitigation and Conservation Commission is a decrease of almost $7 million because we are anticipating substantial carryover of prior year funds.

The Central Utah Project Completion Act provides that the Secretary may not delegate his responsibilities under the act to the Bureau of Reclamation. As a result, the Department has established a program coordination office in Provo, UT. The program director, Ron Johnston, reports to me and is here today to help respond to any questions you may have.

PREPARED STATEMENT

Mr. Chairman, that completes my remarks. Again, I am pleased to be here today and will be happy to answer any questions. Thank you.

[The statement follows:]

PREPARED STATEMENT OF PATRICIA J. BENEKE

My name is Patricia J. Beneke. I serve as the Assistant Secretary for Water and Science of the Department of the Interior. I am very pleased to be here today with Commissioner Martinez to testify on the President's fiscal year 1997 budget for the Bureau of Reclamation and for implementation of the Central Utah Project Completion Act.

BUREAU OF RECLAMATION

The President's fiscal year 1997 budget request for current appropriations for the Bureau of Reclamation is $796.5 million. This request is offset by discretionary receipts, resulting in net discretionary budget authority of $765.2 million, an increase of $7.1 million from fiscal year 1996.

The fiscal year 1997 budget reflects BOR's evolving role in water resources management. As major projects have moved close to completion, funding requests for traditional construction projects have decreased. BOR plans to meet the challenge of continuing Federal funding constraints through partnerships with other Federal and non-Federal entities, and by promoting cooperative, effective stewardship of the West's water and associated natural resources. The budget requests funds to implement such partnerships to promote water conservation, wastewater reclamation/reuse, and environmental restoration.

One of our highest priorities continues to be providing adequate funding for operation, maintenance and rehabilitation of Reclamation's existing facilities. The fiscal year 1997 request for the Operation and Maintenance Program is $292.9 million, an increase of $19.8 million over the amount enacted for fiscal year 1996. Ensuring the safety and reliability of Reclamation's facilities is essential to providing water and power to its customers and revenue to the Federal Treasury. Reclamation is working closely with water users and other stakeholders to ensure that available resources are used effectively. In addition, Reclamation is identifying and implementing measures designed to maintain the level and quality of services, but at a lower unit cost.

The fiscal year 1997 request for the Construction Program is $392.5 million, a decrease of $18.5 million below fiscal year 1996. The fiscal year 1997 request provides funds to move several large projects towards completion and to undertake substantial dam safety work. In addition, the budget includes $32.2 million for continued Federal cost-sharing in four water reclamation/reuse projects in California. Funds are also requested for several environmental restoration projects, including $15.0 million for Columbia/Snake River Salmon Recovery projects and $14.5 million for Endangered Species Recovery projects in other river basins.

Reclamation's fiscal year 1997 budget includes a request for $38.1 million from the Central Valley Project Restoration Fund, which will be used for a wide variety of fish and wildlife restoration activities, including acquisition of water for wildlife refuges and other purposes, and continuing work on the new Shasta Dam Temperature Control Device. The request is financed in part by a proposal to collect an estimated $31.3 million in additional mitigation and restoration charges, the maximum available under the CVP Improvement Act.

CENTRAL UTAH PROJECT

The Central Utah Project Completion Act, Titles II–VI of Public Law 102–575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District. The Act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; establishes the Utah Reclamation Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Water Rights Settlement.

The Act provides that the Secretary may not delegate his responsibilities under the Act to the Bureau of Reclamation. As a result, the Department has established a program coordination office in Provo, Utah, with a Program Director to provide oversight, review and liaison with the District, the Commission, and the Ute Indian Tribe, and to assist in administering the responsibilities of the Secretary under the Act. The Program Director, Ron Johnston, reports to me and is here today to help respond to your questions.

The fiscal year 1997 request for the Central Utah Project Completion Account is $43.6 million which is a decrease of $0.5 million from fiscal year 1996. The request includes $25.5 million for the District to continue construction of the Diamond Fork System; continue planning studies on the Spanish Fork Canyon/Nephi Irrigation System and on replacement facilities for the Uintah and Upalco Units; to continue the implementation of water conservation projects and groundwater recharge and conjunctive use programs; and to initiate work on the Duchesne/Strawberry diversion structures.

The request also provides $11.7 million which would be transferred to the Commission for mitigation and conservation projects authorized in Title III of the Act, and for completing other mitigation measures identified in Reclamation planning documents. This amount is a decrease from the fiscal year 1996 amount of $18.5 million because we anticipate that there will be substantial carryover of prior year funds available. Prior to implementing conservation projects the Commission is required by Section 301(g) of the Act to develop a 5-year plan, which will not be completed until this May.

Finally, the request includes funds for the Federal contribution to the principal of the Utah Reclamation Mitigation and Conservation Account ($5.0 million); for mitigation and conservation projects outside the State of Utah ($0.3 million); and for program administration ($1.1 million).

In addition to the request described above, the Bureau of Reclamation's budget includes $7.5 million to complete certain features of the CUP; $25.0 million is included in the Bureau of Indian Affairs budget for the Ute Indian Water Rights Settlement; and $5.4 million is included in the request for the Western Area Power Administration for its contribution to the Utah Reclamation Mitigation and Conservation Account.

This completes my prepared statement. I would be happy to answer your questions.

STATEMENT OF ELUID L. MARTINEZ

Senator DOMENICI. All right. We are going to now proceed to the Commissioner's remarks. We welcome you here. I hope you are enjoying your work, and we will include your full statement in the record. If you would like to give less than that, fine. If it is not too lengthy, you can give it in its entirety.

Mr. MARTINEZ. Mr. Chairman, it is a privilege and an honor to be here before you today. As you know, my tenure as Commissioner is roughly 3 months. During that period, I have been trying to absorb and learn the culture of reclamation and Washington and the Federal budgetary process. I look forward to working with you and the committee.

As Ms. Beneke stated, our budget request for fiscal year 1997 is fairly flat, less than a 1-percent increase over the fiscal year 1996 appropriation. As you know, reclamation continues its transition from a civil works construction agency to a water management agency. However, we continue to place great priority on the maintenance and operation of our infrastructure and on our dam safety program.

Our programs are evolving to include, besides power and water distribution for irrigation purposes, activities associated with urban, Indian, fish and wildlife, recreation, and environmental needs and concerns. We are evolving this way because of an increasing and changing demand for scarce water resources of the West and because we are mandated by law.

We hope to take a leading role in promoting the efficient use of water through initiatives involving water conservation, water marketing, and reuse of water. We will continue to work cooperatively with the States and local water users and other interested parties to provide leadership in efficient water management in the reclamation States.

Our country's investment in reclamation's infrastructure must be protected, and I place a high priority in continuing the proper operation, maintenance and replacement of our infrastructure facilities. Reclamation's operation and maintenance and construction programs account for approximately 90 percent of the budget request.

PREPARED STATEMENT

Reclamation's fiscal year 1997 request will support 6,462 FTE's, representing approximately a 1,500 FTE reduction over the past 3 fiscal years.

Mr. Chairman, this summarizes my remarks.

[The statement follows:]

PREPARED STATEMENT OF ELUID L. MARTINEZ

Mr. Chairman and Members of the Subcommittee, my name is Eluid Martinez, and I am the Commissioner of Reclamation. I appreciate the opportunity to appear before the Subcommittee this afternoon to discuss the Bureau of Reclamation's fiscal year 1997 budget request.

The Bureau of Reclamation was established in 1902 to develop and manage water and related resources in the Western United States. Today, Reclamation delivers 30 million acre-feet of irrigation and municipal and industrial water to more than 28 million people, and is the largest wholesaler of water in the United States. Reclamation's 58 powerplants generate an average 42 billion kilowatt hours of electrical energy annually, making it the ninth largest electric power producer in the Nation.

In this time of budget-consciousness, the Bureau of Reclamation is continuing its evolution from a civil works agency into a water resources management agency. Bureau of Reclamation programs have evolved from emphasizing delivery of irrigation water to include a broad range of other uses, including urban needs, Indian self-sufficiency, fish and wildlife protection, endangered species recovery, environmental restoration, and recreation. At the same time, many older projects that Reclamation operates are requiring more intense maintenance.

In keeping with the President's Reinventing Government Initiative, the Bureau of Reclamation has been seeking "customer" input; asking whether some of the work we do could be accomplished as well or better without Federal involvement; looking for ways to cut costs or improve performance through competition; seeking cost sharing opportunities and ways to put customers first, cut red tape, and empower employees. We are actively implementing these ideas and seeing good fruit from these efforts.

The Bureau of Reclamation's fiscal year 1997 budget request reflects the transition in our mission that has already begun. The total budget request of $765 million in net current authority is comparable to the appropriation of $759 million for fiscal year 1996.

Before describing our request for individual programs, let me discuss several programs of interest.

TITLE TRANSFERS

The Bureau of Reclamation is increasing its on-going efforts to transfer responsibilities for Reclamation projects in two areas: transferring title to certain appropriate Reclamation projects and facilities and transferring operation and maintenance responsibilities.

These voluntary title transfers are for project facilities that are not identified as being of national importance. Generally, these are single-purpose facilities. The title transfers would be to private beneficiaries and other non-Federal governmental entities interested in obtaining ownership or taking over operational responsibility. Recipients of the title transfers must first satisfy Reclamation that they could efficiently and effectively manage the facilities, if they are not already managing them.

Recently, for example, title was transferred for the irrigation and drainage facilities portion of the Rio Grande project in New Mexico to two water districts. Active negotiations with involved stakeholders are underway on a number of other projects in the 17 Western States.

We are aware that as a precursor to title transfer many complex issues must be resolved, including protection of the public interest and interests of all project beneficiaries, safety concerns, financial obligations, Native American trust responsibilities, liabilities, and environmental concerns and issues.

It has been Reclamation's policy for decades to transfer operation and maintenance of projects to local entities where and when appropriate. In cases of transferring operation and maintenance of multi-use facilities, care must be taken to ensure all parties' interests will be considered.

PARTNERSHIPS

The Bureau of Reclamation has formed new partnerships and enhanced existing partnership arrangements in order to carry out its mission more effectively, and at a lower cost to the taxpayers. Examples of these partnerships include:

—Reclamation is participating in four projects that will reclaim and recycle wastewater for reuse. This effort is intended to develop public confidence in the use of reclaimed water for industrial purposes, landscape irrigation, and groundwater recharge.

—We are emphasizing regional cooperation and consensus among private interests and local, State, and Federal agencies to find the best ways to meet regulatory requirements and to achieve mutual goals. A key example of this is the Bay-Delta accord in California, in which Reclamation played a key role.

—Reclamation is actively working with other Federal, State, and local agencies and Indian Tribes to restore and protect native and endangered species and their habitat on the Columbia and Snake Rivers in the Pacific Northwest; the Colorado River basin; the Platte River basin; and the rivers along California's coast and in its Central Valley.

—The Bonneville Power Administration will provide $10.4 million to fund major replacements and additions at powerplants in the Pacific Northwest.

These partnerships have allowed Reclamation employees to alter the way we do business, and the way we interact with all of our customers. Through aggressively pursuing these kinds of changes, Reclamation will be able to continue its leadership role in water management at less cost to both the taxpayers and to water users who contract with us.

PERFORMANCE MEASUREMENT

The Bureau of Reclamation staff, on its own initiative, has developed performance measures consistent with the Government Performance and Results Act of 1993. Twenty-three indicators have been developed for key program areas, such as Water and Energy Management and Development and Facility Operation.

The key areas are based on a proposed new programmatic budget structure for fiscal year 1998. An annual performance plan, including the indicators, will be developed. The new structure would focus on objectives, which will facilitate program and budget decisions. We plan to work with the Committee to ensure that any new budget formats meet your needs as well as ours. At that point, I hope that the committee would agree to use the new format in enacting fiscal year 1998 appropriations. I urge you and your staffs to work with us in achieving this objective.

REINVENTION

The Bureau of Reclamation has been recognized as a leader among Federal agencies for its reinvention efforts. Reclamation received the Ford Foundation's Innovations in American Government award for redirecting its policies, processes and priorities to address fundamental changes in water resources management. Based on the recommendations of an employee group, Reclamation reduced two layers of management, reduced the workforce by approximately one-third, reduced evaluation time for safety of dam checks, and reduced its internal regulations by over 50 percent.

Now, I would like to focus on Reclamation's fiscal year 1997 budget request.

OPERATION AND MAINTENANCE

The fiscal year 1997 budget request of $292.9 million for the operation and maintenance program funds the operation of 38 projects and the administration of 14 associated programs. Protection of the existing infrastructure, the delivery of water and power benefits, the conservation of natural resources, and the collection of revenues are among our highest priorities. Reclamation's budget request includes funds necessary to help insure the reliability and operational readiness of the facilities at Reclamation's projects. The Bureau of Reclamation regularly conducts preventive maintenance and performs scheduled minor and major maintenance on a recurring basis. In fiscal year 1997, several new features will be transferred to the O&M program, including operation of the San Justo Dam in the Central Valley Project, water exchange facilities on the Umatilla Basin Project, and additional delivery systems on the Mni Wiconi Project.

CONSTRUCTION PROGRAM

The $392.5 million request for the Construction Program provides for funding continued work on 33 major projects, a number of smaller projects and programs, and applied research activities in the Science and Technology program.

For major projects close to completion, Reclamation is committed, within budgetary limitations, to seek sufficient funding so that project benefits can be realized and repayment of the Federal investment can be initiated. Each project is examined to determine if uncompleted portions should either be left uncompleted or be completed by non-Federal entities. If the decision is made to have Reclamation complete the project, funding is requested to complete the project as quickly as possible, within budgetary constraints.

The Safety of Dams program to protect persons and property continues to be the Bureau of Reclamation's highest priority. The request of $64.2 million for this program is to continue modification and construction work on 9 Reclamation dams. The Initiate Safety of Dams Corrective Action program will provide for the preparation of designs, modification reports, and corrective activities for up to 32 dams. Because of its expertise in the dam safety area, Reclamation also assists other Interior agencies with their dam safety programs. An outside peer review of the Safety of Dams program will be performed to evaluate the program's strengths and weaknesses.

The budget request includes $11 million to complete work at Folsom Dam. That situation has required extensive repairs. The funding will complete repairs to the gate and provide for strengthening of the remaining seven gates.

The request includes $71.7 million for the Central Arizona Project, $56.9 for the Central Valley Project, $28.4 million for the Mni Wiconi Project, $21.6 million for the Garrison Project, and $10 million for the Animas-La Plata Project. Work also will be completed on the Colonias Drains on the Rio Grande Project in New Mexico in fiscal year 1997.

LOAN PROGRAM

Included in the $12.7 million request are seven ongoing loans. One is for the Schuk Toak District of the Tohono O'odham Nation for development of an on-farm irrigation system, using water delivered under the terms of the Southern Arizona Water Rights Settlement Act of 1982. Another loan is for the Eastern Municipal Water District No. 3 for water reclamation for irrigation, wetlands, and municipal and irrigation use. The remaining five loans also concentrate on better utilizing water supplies through reclamation and reuse.

GENERAL INVESTIGATIONS

Funding of $15.1 million is requested for 34 ongoing studies and 18 new planning studies. This program involves strategies to meet future water quality and quantity needs through effective management and conservation of water.

GENERAL ADMINISTRATIVE EXPENSES

The $49 million request funds overall program and personnel policy management; equal employment opportunity; safety and health management; budgetary policy formulation; information resources management; procurement and property policy; public affairs coordination; and organizational and management analysis.

CENTRAL VALLEY PROJECT RESTORATION FUND

The $38.1 million requested for this program will provide funding for habitat restoration, improvement, and acquisition, as well as other fish and wildlife restoration activities directed by Title 34 of Public Law 102–575. That Act provides for comprehensive and coordinated actions, including protection of the San Francisco Bay and Delta, while bringing long-term benefits to California's environment and economy. The program is financed by revenues from water and power users.

A program to acquire additional water supplies to supplement the quantity of water dedicated to fish and wildlife will be continued, requiring $11.3 million. Another $12.3 million is requested for programs to restore declining populations of anadromous fish, to avoid loss of juvenile fish resulting from unscreened or inadequately screened diversions, and to assess and monitor the effectiveness of various fish and wildlife restoration activities. Improvements costing $2 million will be made to the Coleman National Fish Hatchery, in coordination with the U.S. Fish and Wildlife Service.

Reclamation plans to use $3.5 million from the CVP Restoration Fund to finance continuation of the Shasta temperature control device to control water temperatures in the Upper Sacramento River for the benefit of anadromous juvenile salmon.

Mr. Chairman and Members of the Subcommittee, this concludes my prepared remarks. I would be happy to respond to any questions Members may have concerning the Reclamation program and our fiscal year 1997 budget request.

RIO GRANDE BOSQUE, NM

Senator DOMENICI. Thank you very much, Commissioner.

Let me just start with one that is parochial to New Mexico, your State and mine. I think you remember late in 1991 in New Mexico a citizen's advisory committee was established to seek input and to prepare recommendations for the Rio Grande bosque. That is kind of our greenbelt, for those who wonder about that word. That kind of means cottonwood trees, I think, and we have a lot of them for a very, very long stretch.

When I was growing up, I remember this bosque was beautiful and teeming with plant and animal life. There has been a lot of development along the Rio Grande and there is a great emphasis now on making sure that this is with us forever, both from the standpoint of the trees and some way to perpetuate the planting of those trees. Floods used to plant them, so we have to do it another way.

But this group recommended that representatives of the Federal, State, local, and native governments get involved in helping manage it, coming up with different ideas about how it could be preserved. In the past the Bureau has been one of the main Federal agencies in the conservation initiative of this New Mexico bosque.

At your confirmation hearing you indicated that this would clearly fit within the Bureau of Reclamation's activities. I would like to take this opportunity to reaffirm your commitment to this initiative, which is important to the people of the entire State. Would you do that for me, please.

Mr. MARTINEZ. Senator, it is my understanding that this group you refer to came out with some recommendations. I understand the State of New Mexico Legislature in 1995 passed a law addressing this issue, which was vetoed by the Governor. Reclamation intends to move forward to implement some of those recommendations. You have my commitment that we will manage our system to try to best preserve that bosque. It is a vital resource to the Middle Valley.

Senator DOMENICI. Thank you very much. The part that the Governor vetoed was a citizen group to continue the implementation. There is a lot of work that has to be done.

ANIMAS-LA PLATA PROJECT

Let me move on to Animas-La Plata. How is the Secretary proceeding to carry out the direction that Congress put in the appropriation last year with reference to Animas-La Plata, the biological opinion?

Mr. MARTINEZ. We intend to move forward with the will of Congress on this project. As you know, it has been a controversial project and will continue to generate controversy. We will meet all applicable Federal law and I will move cautiously to meet the intent of Congress.

Senator DOMENICI. Could I ask either or both of you, what is the schedule for filing the final supplement to the final environmental statement with EPA and for completing the record of decision and the notice to start construction of phase 1, stage A of this project?

Ms. BENEKE. Senator, we are moving forward with that. It is my understanding that the supplement to the final environmental statement is very near to completion and we hope to have that available in the near future. In terms of the schedule from there forward, we are very mindful of the language that Congress enacted last year directing us to proceed.

I hesitate to give specific dates. I have been around long enough to know that I should not do that. But we are making progress and intend to continue to do so.

Senator DOMENICI. Well, I tell you, maybe you should not make dates that you absolutely promise us will be carried out, but I think it is highly appropriate that you tell us what your intentions are with reference to filing dates. They may not work out because there is a lot of opposition to this project. But I would think that you should be able to tell us what the schedule for filing the final supplemental to the final environmental statement of EPA record of decision, tell us when that would be filed.

Ms. BENEKE. Well, I am hopeful that we will be able to file it very soon. We are in the process of doing some interdepartmental coordination within the executive branch and it will depend on the outcome of that coordination. We are hopeful that we will be able to file it soon.

Senator DOMENICI. Well, let me say, Madam Secretary, even though there may be conflicting ideas by different groups, Congress has spoken, at least for now, unless somebody says our speaking had no impact. So, I would really think that you ought to report to the committee.

Could you take a look and see if you can give us a schedule for the record?

Ms. BENEKE. I would be glad to do that.

Senator DOMENICI. Within the next 10 days or however soon you are going to answer these questions. And if you cannot give us that, then perhaps we will communicate with you asking for some periodic communications from you as to how things are going.

Ms. BENEKE. Senator, I would be happy to do that. I do anticipate that it may be difficult for me to nail down dates, but I will check into that and, if I am not able to do that, we will be glad to work with you and the staff to keep you apprised.

[The information follows:]

ANIMAS-LA PLATA

Given the National Environmental Policy Act procedural requirements, the Record of Decision can be signed no sooner than 30 days after notice of filing by the Environmental Protection Agency in the Federal Register.

Senator DOMENICI. What action can be taken to expedite the award of phase 1, stage A construction contract, for Ridges Basin Dam and Reservoir and for the Durango pumping plant?

Ms. BENEKE. We have increased our budget request from previous years by $5 million to a request of $10 million for this year, and as I understand it, some of the funds will be slated for that purpose.

I also am aware that just within the last week or so there has been another lawsuit filed with respect to this project. Our Solicitor's Office is in the process of reviewing it for any implications that it may have.

Senator DOMENICI. I am going to insert in the record at this point and perhaps submit this to you for your perusal a Denver Post editorial regarding the Sierra Club's position on this, which they call The Sierra Club's animus, a-n-i-m-u-s—it should not be Animas-La Plata, another kind of animas—indicating what the Denver Post thinks about the litigation. I would like very much for you to have a chance to peruse that, but it will be made a part of the record.

[The information follows:]

[From the Denver Post, Mar. 24, 1996]

SIERRA CLUB'S ANIMUS SHOULDN'T SINK LA PLATA PLAN

Supporters of the Animas-La Plata water project in southwest Colorado are feeling decisively upbeat after the Clinton administration recommended $10 million for A–LP in its proposed budget for the 1977 fiscal year.

Last year, the Interior Department recommended only $5 million for Animas-La Plata. But Rep. Scott McInnis, whose 3rd District includes the project, and Sen. Ben

Nighthorse Campbell persuaded Congress to appropriate $10 million. Now that the administration is itself recommending $10 million, the project's backers are optimistic that Congress will again double the ante and approve $20 million to get this long-stalled project moving.

Animas-La Plata has justifiably won strong backing in Congress even in the midst of a budget crunch that has sidelined many traditional "pork barrel" projects. That's because Congress recognizes A–LP is the only feasible way of meeting a century-old obligation to the state's Ute Indian tribes—whose territory once spanned the entire Western Slope of Colorado and parts of Utah.

Indeed, a recent lawsuit filed by the Sierra Club claiming that the project would impose an undue burden on local taxpayers may be a sign of desperation among Animas-La Plata's opponents. The suit merely echoes long-standing muttering by some EPA officials, which surfaced again last week in a letter to the Utes from Jack McGraw, interim regional director, complaining that "the project is too costly to do without looking at other alternatives."

The simple fact is that the Sierra Club's obstructionist tactics are themselves the largest source of cost increases in the project—which puts the club's sudden embrace of fiscal conservatism on a par with the man who killed his parents and then begged for mercy from the court on the grounds that he was an orphan. Sen. Campbell justifiably responded to McGraw's carping by noting that the EPA is supposed to evaluate environmental issues—not substitute its own economic priorities for those of Congress.

The fact that the Sierra Club has been forced to resort to such a frivolous suit strongly suggests that, like McGraw, it has run out of legitimate environmental objections. And that tends to confirm the growing confidence among the project's backers that 1996 will be the year when Congress and the state of Colorado finally begin to meet this longstanding obligation to the Utes.

GENERAL INVESTIGATIONS PROGRAM

Senator DOMENICI. Let me move on if I might. The budget request for the Bureau of Reclamation appears to be a continuation of programs and policies in the current budget year. The one area that reflects a significant increase over fiscal year 1996 is in the general investigations program. How do you explain to us the nearly 20-percent increase for that account, Mr. Commissioner?

Mr. MARTINEZ. Mr. Chairman we are undertaking programs involved with water conservation, efficient use of water, fish and wildlife, and environmental issues, as we move from construction to water management. These initiatives are partnerships with different water user groups across the West to try to address both issues that are site-specific to individual projects and issues that cut across the reclamation States.

I would be glad to provide you with a detailed list and accounting as to each of these new projects.

Senator DOMENICI. I have your study list, and much of this increase is to initiate 18 new studies. I am concerned because, given the constraints that we face, it seems to me that this budget leaves some things out while it starts these new ones.

I am not so sure we are going to be able to do these, because we may not agree with those that you have left out of your budget. Are there any studies which received funding in 1996 that have follow-on funding requirements, but have not been included in the 1997 request? Maybe your budget expert could answer that.

Ms. BENEKE. I think we are going to need to provide that for the record.

Senator DOMENICI. All right. Would you provide a list of those for the record. Show each study, the Bureau's funding capability, and a brief explanation of why no funds are requested.

[The information follows:]

Program Capability

There are no studies in the fiscal year 1996 program which required follow-on funding in fiscal year 1997.

OTHER NEW PROGRAMS

Senator DOMENICI. Are there any new programs or initiatives included in the 1997 budget request, not limited to general investigation accounts, which are not funded in the current fiscal year? Other than the new studies, are there any new programs in 1997 that were not in there in 1996?

Ms. BENEKE. Again, Senator, if we could provide that for the record I think we could give you a more thorough answer.

Senator DOMENICI. OK.

[The information follows:]

New Initiatives or Programs

CONSTRUCTION

Efficiency Incentives Program ($4.4 million).—Reclamation is establishing this as a program to more effectively execute its ongoing responsibility to encourage efficient water use on Federal water projects. Funds under this program will be used to provide cost-sharing to local agricultural and urban water districts that receive water from Federal water projects to encourage more efficient use of water through the demonstration and implementation of water conservation efficiency measures. Reclamation is directed under the Reclamation Reform Act of 1982 to encourage water conservation and efficient use of water on Federal water projects.

Southern Arizona Water Rights Settlement Act ($7.0 million).—Prior to fiscal year 1994, funding for these activities was requested in Reclamation's budget, but SAWRSA funds were moved to BIA's budget when a new account to fund Indian water rights settlements was first proposed. The new account was The Land and Water Settlement Fund. Since then, it has proven difficult to coordinate the two requests. To simplify coordination, funding proposed for ongoing SAWRSA projects and water resources activities have been moved back to Reclamation's budget in fiscal year 1997.

Endangered Species Recovery Implementation—Platte River Recovery Implementation ($2 million).—Pursuant to a memorandum of agreement signed in June 1994 by the Governors of Nebraska, Colorado, Wyoming, and the Secretary of the Interior, the parties are seeking to pursue a basin wide Platte River Recovery Implementation Program. The three States and the Federal government will share in the costs of implementing the program. Interior has proposed to contribute $2.5 million per year for 10 years, for a total of $25 million, with the remaining costs of the Program during this 10-year increment being met by the three States. Federal funds will be used for water conservation efforts, program administration, monitoring, and evaluation.

OPERATION & MAINTENANCE

Columbia-Cold Springs pumping plant ($0.2 million).—First-year funding is required for the operation of this pumping plant which is a feature of the water exchange facilities on the Umatilla Basin Project.

Operation of San Justo Dam ($0.1 million).—The operation is expected to be transferred from construction status to the operation and maintenance program for fiscal year 1997.

Mni Wiconi Project ($0.4 million).—Additional water delivery systems on this project will be transferred to the operation and maintenance status in fiscal year 1997.

CONSTRUCTION PROGRAM

Senator DOMENICI. Could we move over to the construction account for just 1 minute. Does the request before this committee maintain the completion schedules anticipated in the 1996 appropriations? And if it does not, would you provide us a list of those projects, whether included in your budget request or not, that have schedule delays?

Do you know, first, does the request before the committee maintain the completion schedule anticipated in the 1996 appropriation?

Ms. BENEKE. I am not aware of any particular schedule delays. Again, if we could provide that for the record we will get you an accurate and thorough response.

Senator DOMENICI. All right, we will do that.

[The information follows:]

SCHEDULE DELAYS

The Columbia and Snake River Salmon Recovery Program shows a one-year slip in completion date from fiscal year 1999 in the fiscal year 1996 Justifications to our current estimate of fiscal year 2000. The delay was due to an extension of time required to complete the Snake River resource review, and other biological activities.

The Mid-Dakota project now has an estimated completion date of 2004, compared to 2002 in last year's Justifications, because of funding constraints.

Completion of portions of the Los Angeles Area Water Reclamation and Reuse Program and the San Diego Area Water Reclamation and Reuse Program have been delayed 1 year, as compared to the fiscal year 1996 Justifications, due to funding constraints. Completion of portions of the San Gabriel Basin Project has also been delayed by 1 to 6 years due to litigation and program revisions by the local sponsors.

The Bonneville Unit of the Central Utah Project shows a completion schedule delay in this budget request from that presented in the fiscal year 1996 Budget Justifications. Funding for the Jacob-Welby water exchange is subject to a satisfactory agreement between Reclamation and the Water Districts which is currently being negotiated.

NATIONAL FISH AND WILDLIFE FOUNDATION

Senator DOMENICI. For the first time, in 1996, Congress made a specific appropriation to the Bureau of Reclamation to support National Fish and Wildlife Foundation activities. How does the Bureau plan to administer and oversee the program and the activities undertaken through the foundation?

Mr. MARTINEZ. Mr. Chairman, we have a cooperative agreement on how we will manage the program, and we will provide for the record the criteria we are using to evaluate projects.

Senator DOMENICI. All right.

[The information follows:]

CRITERIA FOR NATIONAL F&W FOUNDATION

NATIONAL FISH AND WILDLIFE FOUNDATION/BUREAU OF RECLAMATION—ENVIRONMENTAL RESTORATION PROJECT GRANTS—BACKGROUND INFORMATION TO ASSIST PROJECT RATING

MISSION STATEMENT

The Bureau of Reclamation and the National Fish and Wildlife Foundation have agreed to cooperate to benefit the nation's natural resources. This agreement will fund projects to restore the health of watersheds and their ecosystems. Projects will apply ecosystem approaches in order to ensure the sustainability of aquatic systems, and enhance ecological integrity and biological diversity.

PURPOSE AND OBJECTIVE

To develop and execute projects and agreements which further the conservation and maintenance of the United States' fish, wildlife, plant, and other natural resources. These projects and agreements will enable Reclamation and NFWF to meet the public's need and demand for sustainable use of their resources consistent with Reclamation's mission within the 17 Western States. Funds provided by Reclamation will be required to be matched by non-Federal funds in aggregate on at least a one-to-two basis (i.e., one Federal dollar for two non-Federal dollars). The objective is to find and support actions that reflect sustainable economic, socio-cultural and community goals consistent with restoring and maintaining the health, sustainability, and biological diversity of ecosystems and watersheds within Reclamation's jurisdiction.

PROJECT CRITERIA

All projects must benefit water systems, lands, and/or supplies administered by the Bureau of Reclamation. In addition, all proposed projects will be evaluated on the following criteria, however, failure to qualify on all the criteria will not automatically disqualify. The project should:

—Apply techniques and principles inherent to an ecological approach to stream and watershed restoration.

—Involve habitat protection, restoration or enhancement that considers species needs, ecosystem needs, as well as the linkage of species to its/their watershed and ecosystem.

—Have significant benefits to the habitat of native species and the ecosystem on which they are interdependent.

—Address the cause(s) of species or community decline or habitat degradation.

—Benefit special status species (e.g., proposed, candidate, or Federally listed threatened or endangered species or State listed species), migratory birds, native fish, and wetlands and other special aquatic sites.

—Be a cooperative effort among Federal, State, Tribal, and/or private partners. Involve all parties interested in the watershed, water resource management, the plight of the species and potentially affected by or concerned about the project.

—Further sustainable development.

—Demonstrate likelihood of success.

—Make significant accomplishments in the first year of funding.

—Demonstrate ability to match Federal funds on a 1:2 (Federal:non-Federal) basis.

—Have completed or demonstration of ability to readily complete compliance with the National Environmental Policy Act and other applicable statutes.

Project funds cannot be used for: political advocacy or litigation; shortfalls in government agency budgets; general administrative overhead; multi-year projects (applicant may reapply); basic research (including graduate research).

National Fish and Wildlife Foundation/Bureau of Reclamation Environmental Restoration Project Grants

RATING SHEET

Reviewer:____________________________
Project Title/Number:____________________________
Project Meets: Criteria of benefiting water systems, lands, and/or supplies administered by the Bureau of Reclamation. Yes, No.

IF answer is NO, stop evaluation. If Yes, continue evaluation.

Project meets criteria in that it is/does not: include political advocacy or litigation; address shortfalls in Federal government agency budgets; include general administrative overhead; requesting a long-term commitment of funds (e.g., a multi-year project) applicant may reapply); basic research (including graduate research); required mitigation. Meets, Doesn't Meet, Unk.

If answer is Doesn't Meet, stop evaluation.

Matching funds availability? <1:1=0, 1:1=5, 2:1=7, >2:1=10 ______

Degree project is linked to the mission of the Bureau (e.g., via watershed, ecosystem, and/or Reclamation lands, etc.) and any species of concern to benefit.) (0=tangential relationship; 10=very linked to mission accomplishment).

Project compatibility with Reclamation mission (i.e., rank the degree—0=none, 5=high—the project goals and objectives support Reclamation's new mission taking into account the likely results/outcome of the project)

______water resource management
______water conservation
______ground water recharge
______water quality improvement
______watershed management planning
______wetlands
______native fisheries

______native plants

______migratory birds, or other wildlife on or associated with lands or water within Reclamation jurisdiction

______Federally listed, proposed or candidate species affected by Reclamation activities or affecting Reclamation management of waters and lands

______recreational fisheries

Subtotal______

Project compatibility/support for Federal goals and objectives (i.e., rate the degree to which project goals and objectives support other Federal goals and objectives):

______floodplain management

______habitat protection

______special aquatic sites (as defined in Clean Water Act)

______migratory birds

______other wildlife

______Federally listed, proposed or candidate species (if different from above)

______environmental justice

______Indian Trust Assets

Subtotal______

Project compatibility/support of State, local or watershed goals and objectives (degree)

______State listed or other special status species

______ripartan vegetation

______economic improvement/community development or redevelopment

______State, local or watershed management, habitat protection, nonpoint source reduction plans, etc.

Subtotal______

Evaluation of project cost effectiveness (e.g., 0=not cost effective, 5=what a bargain!) ______

Reasonableness of the budget (e.g., 0=unrealistic, 5=seems well thought out and supported) ______

Project timeliness—degree to which this project should be performed now (E.g., 0=no immediate need, 5 compelling need to undertake activity now) ______

Speed with which the project will obtain necessary approvals (e.g., NEPA, CWA, ESA) and realize measurable benefits to the environment (e.g., 0=may never realize benefits, 10=immediate benefits upon project completion). ______

Evaluation of stakeholder involvement and support (backing and promotion) (e.g., 0=no to low involvement and support, 5=high support and involvement by variety of stake holders.) ______

Degree project fits with management plans in effect for the project area (MOU's, MOA's, Species Recovery plans, Habitat Conservation plans, or cost share agreements) (e.g.,0=proposal doesn't reflect or seem to have considered its project's value in terms of ecosystem needs; 5=fits well with Federal, State or watershed management plans or known needs)______

Furthers sustainable development and the likelihood of long-term success (e.g., 0=low probability of long-term sustainable environmental benefits; 5=high, well thought out watershed approach to solutions, has long-term management plan, is economically and environmentally sustainable) ______

Overall, degree you are convinced Bureau of Reclamation funds should be used for this project. (E.g., 0=wouldn't suggest for BR funding; 5=highly competitive, worthy of very scarce funds) ______

Comments (including "show stoppers"): ______________________________

Your personal ranking: ______________________________

NON-FEDERAL MATCHING FUNDING

Senator DOMENICI. This foundation had a pretty good track record of leveraging two to three times the Federal dollars for every Federal program dollar. However, Congress also identified several projects to receive foundation support for 1996. Will the Bureau require a non-Federal match of not less than one for one for these projects?

Mr. MARTINEZ. Our goal is to match Federal funds two to one.

Senator DOMENICI. And I gather that you plan to seek that?

Mr. MARTINEZ. Yes.

Senator DOMENICI. That is what you intend to try to have as the result?

Mr. MARTINEZ. Yes; we are striving for a non-Federal match of two to one. One to one is the minimum.

Senator DOMENICI. Very good.

The project justification refers to funding and/or in-kind services from other Federal agencies. It says that these will be provided on some projects. Could you elaborate on that statement, or would you rather do it in writing?

Mr. MARTINEZ. We will provide it in writing.

Senator DOMENICI. Could you tell us what those are, please, and what the anticipated dollar amount of the contribution or in-kind service will be?

[The information follows:]

COST-SHARING

We have no specific projects in mind. Because it is Reclamation's objective to find and fund projects that reflect broad community support and a watershed outlook to sustainable environmental restoration, we expect that there may be some circumstances where a consortium of local, State, and Federal entities exists to participate and support a project. The Bureau included this language in case other Federal agencies offered to provide assistance to the projects. We have not established what an accepted dollar amount of the in-kind contribution would be.

CENTRAL VALLEY PROJECT IMPROVEMENT ACT—NON-FEDERAL COST SHARING

Senator DOMENICI. Let us move to the Central Valley Project Improvement Act. We are not going to spend a lot of time on this, but one of the issues that clearly has been festering has to do with California's efforts to provide a way to meet its cost-sharing responsibilities.

What is the status of California's efforts? Do you know at this point?

Ms. BENEKE. Well, sir, I am aware that this continues to be an issue that we are working on with the State. I am also advised that there is an initiative pending before the State legislature that would provide substantial sums of money for water resource uses.

I am told that it is scheduled to be part of a referendum this fall, and if approved would be very helpful in terms of the cost share issue.

Senator DOMENICI. I note that the budget request for the California Valley Project Restoration Fund is $38.1 million, compared with $43 million in 1996. I am informed that section 3407(c)(2) requires a $50 million a year average for this project by 1998. I wonder if that is your understanding of it. If it is not, could you explain for the record in more detail and give us a brief summary. Give us a brief summary now and explain it in more detail for the record.

Ms. BENEKE. Yes; I believe that that $50 million pertains to appropriations from the restoration fund under the CVPIA. We would be happy to provide further information for the record if that would be helpful.

[The information follows:]

CVPIA—$50 MILLION AVERAGE

The Department is currently reviewing what actions, if any, are appropriate to comply with section 3407 (c) and (d). This review includes identification of what budget impacts, if any, would begin in fiscal year 1998 as a result of complying with section 3407.

REDUCTION IN CENTRAL VALLEY PROJECT RESTORATION FUND

Senator DOMENICI. OK. Did you just say you will explain to us why there is a reduction in that account?

Ms. BENEKE. Yes; we can supply that also for the record. As I understand it, receipts into the account depend partially on what kind of water year is being experienced in California, and those receipts could be lower because of the water year in that State.

SUBMITTED QUESTIONS

Senator DOMENICI. I understand that several members have questions for you. Those will be included in the record. Senator Bennett has some questions and we think there will be some others. Would you get those back to us as quickly as possible, and please look at this record where you told us you would give us more information. Would you do that for us, please?

Ms. BENEKE. We will be happy to, Mr. Chairman.

Senator DOMENICI. Do you have anything further you would like to share with the committee, either your budget person, the Commissioner, or you, Madam Secretary?

Ms. BENEKE. I think not. Thank you very much.

Senator DOMENICI. Well, I am sorry we kept you so long.

Mr. MARTINEZ. Thank you, Mr. Chairman.

Senator DOMENICI. Thank you. We will take a brief recess before proceeding with the Corps of Engineers.

[The following questions were not asked at the hearing, but were submitted to the Bureau for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR DOMENICI

CENTRAL VALLEY PROJECT IMPROVEMENT ACT (CVPIA)

STATE COST SHARE

Question. The budget justification indicates that in order to be a full partner in CVPIA activities, the State of California share of the costs is estimated to be $75 million. First, what was the State's appropriate share for 1995 and 1996?

Answer. A cost-share agreement was entered into between the Federal Bureau of Reclamation, U.S. Fish and Wildlife Service, and the State of California's Department of Water Resources and Department of Fish and Game on June 27, 1994. The agreement provides for the joint development of individual task orders for all CVPIA sections requiring mandatory State cost-sharing. An annual accounting of all costs projected to be spent and actual expenditures is a requirement stipulated in each task order. Until such time as individual task orders have been negotiated and signed, we are not able to provide financial data as to the State's appropriate share for fiscal year 1995 and 1996.

Question. How much State contribution has the Bureau of Reclamation received on CVPIA work?

Answer. The State has made several contributions on CVPIA work; however, the exact amounts to be credited toward its cost-share obligations have not been verified. Verification of the State's contributions will be conducted during negotiations and implementation of individual task orders.

Question. What is the status of efforts by California to provide a way to meet its cost-sharing responsibilities?

Answer. It is anticipated that a large portion of the State's funding will have to be raised through the State bond process. Senate Bill 900 (SB900) was introduced in 1995 to serve as a vehicle for this process. Intended for the November 1996 general election ballot, SB900 will, among other things, provide a framework for the State financing of CVPIA actions. Senate Bill 900 has passed the Senate floor and is presently before the Assembly.

Question. What level of State cost-sharing is anticipated on the Bureau's 1997 funding request for CVPIA activities?

Answer. It is anticipated that several individual task orders will be negotiated and signed by all parties in 1997. With the passage of Senate Bill 900, it is anticipated that the level of State cost-sharing will be in accordance with the master cost-share agreement signed in June of 1994.

Question. Has the State of California committed to providing its cost-sharing as required by the CVPIA?

Answer. The State has committed itself to providing its cost-sharing as required by the CVPIA by entering into an agreement with Department of the Interior on June 17, 1994. In addition, the State has, or is in the process of, entering into task orders relating to Section 3406(b)(14) (Georgiana Slough), Section 3406(b)(20) (Glenn-Colusa Irrigation District Pumping Plant Mitigation Program), Section 3406(b)(12) (Clear Creek Fish Restoration Program), and Section 3406(b)(13) (Restoration of Gravel Program).

FISCAL YEAR 1997 BUDGET REQUEST

Question. The budget request for CVPIA activities for 1997 is $38.1 million compared to $43.5 million in 1996. What accounts for this reduction?

Answer. The request for appropriations from the Central Valley Project Restoration Fund is an indefinite amount; that is, the request is to appropriate all funds collected in the Fund in a given fiscal year. The fiscal year 1997 request is financed in part by a proposal to collect an estimated $31.3 million in additional mitigation and restoration charges. While this is a reduction from estimated collections in fiscal year 1996, it is the maximum amount projected to be available under the authority in Section 3407(d) of the CVP Improvement Act.

Question. What was the Bureau of Reclamation's CVPIA funding request to OMB?

Answer. The CVP Restoration Fund request for fiscal year 1997 submitted to OMB in September 1995 was $29,140,000. Since that time, actual collections in fiscal year 1995 proved to be less than anticipated, with the result that additional funds could be collected in fiscal year 1997 under the authority in 3407(d). In addition, the construction and operation and maintenance appropriation accounts included $18,450,000 and $7,356,000, respectively.

The President's Budget for fiscal year 1997 includes $38,096,000 for anticipated CVP Restoration Fund collections; $23,387,000 in the construction appropriation account and $7,356,000 in the operation and maintenance appropriation account.

PRIORITY PROGRAMS AND ACTIVITIES

Question. Provide for the record a list of the highest priority programs, projects, or activities which did not make the 1997 budget program submitted to Congress. Also include the amount of funding needed to undertake these activities in 1997.

Answer. All CVPIA fiscal year 1997 priority activities were funded in part, or in whole, by the 1997 budget request. Three are noted as having the capability of accelerating their respective programs with additional funding:

The anadromous fish screen program is budgeted as $12.2 million in fiscal year 1996 and 1997 combined. There is currently $15 million of fish screening work that is actively being discussed for potential construction. This voluntary program is expected to receive additional requests through the remainder of this year and throughout fiscal year 1997. An additional $5 million could be used to expedite the fish screening program in fiscal year 1997.

Land retirement has a fiscal year 1997 programmed budget of $4 million. There are current discussions/negotiations with landowners that could exceed $4 million by a significant amount. An additional $10 million could be beneficially used for purchasing of land for retirement in fiscal year 1997.

The Agricultural Waterfowl Incentive Program is budgeted at $1,239,000. The Act allows for incentives up to $2 million annually.

This additional capability was not included in the President's budget and is not a priority of the Department. The Department does not support the addition of funds for any project which would result in the reduction of funding for other projects included in the budget.

Of course, the amount actually available for expenditure from the CVP Restoration Fund in fiscal year 1997 will depend upon the revenues collected during the year. Funding of items beyond the capability of the CVP Restoration Fund would require funding from other appropriation accounts. Available funds will be allocated to the highest priority activities .

CVPIA—$50 MILLION AVERAGE

Question. I believe that section 3407(c)(2) requires a $50 million per year average for CVPIA activities by 1998, is that correct? If not, could you explain section 3407 in more detail for the record and give the subcommittee a brief summary now?

Answer. The Department is currently reviewing what actions, if any, are appropriate to comply with Section 3407 (b) and (c). This review includes identification of what budget impacts, if any, would begin in fiscal year 1998 as a result of complying with Section 3407.

Question. Where does the program stand with regard to the $50 million average?

Answer. Clearly the $50 million annual average will not be met. Further, given the maximum amount that can be collected in fiscal year 1998 under 3407(d) and projected collections for all other receipts, the fiscal year 1998 appropriation will also fall short.

Question. What actions are being contemplated within the Department of the Interior to comply with the requirements of section 3407 (c) and (d)? What are the potential budgetary impacts of complying with the section 3407?

Answer. The Department is currently reviewing what actions, if any, are appropriate to comply with Section 3407 (c) and (d). This review includes issue of what budget impacts, if any, would begin in fiscal year 1998 as a result of complying with Section 3407.

FUNDING FROM OTHER ACCOUNTS

Question. I understand that the fiscal year 1996 budget funded certain high priority CVPIA activities out of other appropriations accounts, is that correct?

Answer. Yes, that is correct. In part, as mentioned earlier, this has been done because it has been a more effective way to provide funds for the highest priority activities. In addition, over the long term, the non-reimbursable costs of activities authorized by the CVPIA must be funded out of sources other than the CVP Restoration Fund.

Question. Does the fiscal year 1997 budget request continue that practice and if so, could you provide a chart for the record which shows the 1996 and 1997 activities and funding levels associated with CVPIA activities which are funded from other accounts?

Answer. Yes, the practice continues in fiscal year 1997. A chart displaying fiscal year 1996 and 1997 activities and source of funding is provided for the record.

(The information follows:)

CVPIA—ACTIVITIES AND SOURCES OF FUNDING

[Thousands of dollars]

	Fiscal year 1996			Fiscal year 1997		
	CVPRF	Construction	Total	CVPRF	Construction	Total
Habitat restoration (67 percent):						
Miscellaneous project programs:						
Refuge water supply	4,700		4,700	5,000	5,000	10,000
Anadromous fish restoration	3,000		3,000	8,000		8,000
Other CVP impacts				1,000		1,000
Reservoir storage		270	270	300		300
Water conservation					2,650	2,650
Private wetlands investigation	500		500	500		500
Ecol/Water System Ops model		1,150	1,150		950	950
Dedicated project yield	375		375	450		450
Subtotal miscellaneous	8,575	1,420	9,995	15,250	8,600	23,850
Sacramento River Division: Supporting investigations	1,500		1,500	1,000		1,000
San Joaquin Division:						
Basin action plan	1,000		1,000	1,000	1,000	2,000
Water acquisition	10,973		10,973	6,275	1,737	8,012
Land retirement	6,118		6,118	2,000	2,000	4,000

CVPIA—ACTIVITIES AND SOURCES OF FUNDING—Continued

[Thousands of dollars]

	Fiscal year 1996			Fiscal year 1997		
	CVPRF	Construction	Total	CVPRF	Construction	Total
Subtotal San Joaquin	18,091	....	18,091	9,275	4,737	14,012
Subtotal habitat restoration	28,166	1,420	29,586	25,525	13,337	38,862
Other (33 percent):						
Miscellaneous project programs:						
Ag Waterfowl Incentive Program	500	....	500	1,239	....	1,239
Comp Assess Monit Program	2,000	....	2,000	2,312	....	2,312
Riparian Habitat	583	....	583	950	....	950
Anadromous Fish Screen Program	....	7,161	7,161	2,000	3,000	5,000
Subtotal miscellaneous	3,083	7,161	10,244	6,501	3,000	9,501
Sacramento Division:						
Red Bluff Diversion Dam	....	1,500	1,500	....	2,000	2,000
GCID—Hamilton City pump plant	....	3,000	3,000	....	4,300	4,300
Subtotal Sacramento Division	....	4,500	4,500	....	6,300	6,300
Delta Division:						
Contra Costa Canal pump	....	80	80	....	250	250
Old River barrier	....	200	200	....	....	....
Subtotal Delta	....	280	280	....	250	250
Shasta Division:						
Shasta TCD	12,281	21,019	33,300	3,470	....	3,470
Coleman Fish Hatchery	....	....	....	2,000	....	2,000
Clear Creek restoration	....	....	....	500	500	1,000
Anderson-Cottonwood ID	....	200	200	100	....	100
Subtotal Shasta	12,281	21,219	33,500	6,070	500	6,570
Total other	15,364	33,160	48,524	12,571	10,050	22,621
Total	43,530	34,580	78,110	38,096	23,387	61,483
CVPIA operation and maintenance	....	....	6,128	....	....	7,356
Total	43,530	34,580	84,238	38,096	23,387	68,839

RIO GRANDE BOSQUE

Question. Mr. Commissioner, I think you remember that in late 1991 I formed a citizen's advisory committee to seek public input and to prepare management recommendations for the Rio Grande Bosque.

Now for those of you who aren't familiar with the Bosque, that is the term we New Mexicans use for the riparian corridor along the Rio Grande.

When I was growing up, I remember just how beautiful and wild the Bosque was, absolutely teeming with plant and animal life.

Rapid development along the Rio Grande, however, unfortunately caused much damage to that riparian area, and in recent years it became clear than an organized conservation plan would be needed if the Bosque were to survive.

Consequently, as I said, I formed an advisory group to come up with public input and recommendations for conserving the Bosque. The first report of the Middle Rio Grande Bosque Task Force was produced in October of 1994, and was presented to those local, State, and Federal entities charged with its management.

The report recommended forming a council with representatives of Federal, State, local, and Native American governments, and the local water management associations, with a view towards managing the Bosque as a complete ecosystem.

In the past, the Bureau has been one of the main Federal agencies in the Bosque conservation initiative, and at your confirmation hearing you indicated that this would be a priority for the Bureau.

I would just like to take this opportunity to reaffirm your commitment to this initiative which is so important to the people of New Mexico.

Answer. We are fully committed to the Rio Grande Bosque Initiative. The goals contained in the 1994 Bosque Action Plan have been incorporated into our Middle Rio Grande Project maintenance program and related activities. The costs associated with the Rio Grande Bosque Initiative are part of the Middle Rio Grande Project budget. The goals and principles of the initiative are a fundamental part of the way we currently perform our day-to-day river maintenance work.

ANIMAS-LA PLATA PROJECT, CO AND NM

Question. Congress included statutory language in the Fiscal Year 1996 Energy and Water Appropriations Act directing the Secretary to proceed without delay with construction of those facilities in conformance with the final Biological Opinion for the Animas-LaPlata Project.

How is the Secretary proceeding to carry out this direction as stated in section 507 of Public Law 104–46?

Answer. I understand that in complying with the fiscal year 1996 directive several significant accomplishments have been achieved in concert with both Colorado Ute Indian Tribes and cost-share partners. For example:

Endangered Species Act, Clean Water Act, and National Environmental Policy Act studies have continued and we are continuing our land acquisition process, consisting of appraisals, options, and acquisitions, for both mitigation and project construction needs.

A "Division of Work" for Indian Self-Determination contacts has been negotiated with the two Ute tribes. A Facilities Agreement has been prepared for the relocation of the Northwest Pipeline Corporation natural gas pipeline, which in turn is critical to Ridges Basin Dam construction. The Facilities Agreement along with several other components will be used in the application to the Federal Energy Regulatory Commission for a Certificate of Public Convenience and Necessity and Permission and Approval for Abandonment under Sections 7(b) and 7(c) of the Natural Gas Act.

Construction specifications have been completed for Ridges Basin Dam, Stage A, Outlet Works. Self-Determination contract clause identification is currently underway. A service agreement has been prepared between Reclamation field offices identifying a Joint Venture approach in project development while meeting Technical Assistance commitments to both Colorado Ute Tribes. This joint venture approach optimizes existing personnel, expertise, and resources.

Question. What is the schedule for filing the Final Supplement to the Final Environmental Statement with Environmental Protection Agency, the Record of Decision by the Department, and the notice to start construction of Phase I, Stage A of the project?

Answer. Given the National Environmental Policy Act procedural requirements, the Record of Decision can be signed no sooner than 30 days after notice by the EPA in the Federal Register of the Final Supplement to the Final Environmental Statement. Construction must await the signing of the Record of Decision.

Question. How is the Bureau using the $10 million Congress appropriated to begin construction on the project in fiscal year 1996?

Answer. The Animas-LaPlata Project funds provided in fiscal year 1996 are being used in numerous preconstruction activities, including Endangered Species Act, National Environmental Policy Act, and Clean Water Act studies that are underway and which have provided the foundation for the Final Supplement to the Final Environmental Statement for the project. Project funds will also be used in land acquisitions for utility relocations and cultural resource mitigation.

Question. What action can be taken to expedite the award of the Phase I, Stage A construction contract for Ridges Basin Dam and Reservoir, Ridges Basin Inlet Conduit, and Durango Pumping Plant?

Answer. There are several actions that have been taken with respect to contract awards for the referenced features. A formal solicitation, construction specifications, and Public Law 93–638 Indian Self-Determination contract clauses have been completed for Ridges Basin Dam, Stage A, Foundation work. Through the negotiated "Division of Work" efforts with both Tribes, the Ute Mountain Ute Tribe will be the contractor for this solicitation. Specifications have also been completed for Ridges Basin Dam, Stage A, Outlet Works, and the Southern Ute Tribe will be the contractor for the specification.

NATIONAL FISH AND WILDLIFE FOUNDATION

Question. For the first time in 1996, the Congress made a specific appropriation to support National Fish and Wildlife Foundation activities in the Energy and Water Bill. How does the Bureau plan to administer and oversee the programs and activities undertaken through the Foundation?

Answer. The Bureau has recently signed a Cooperative Agreement that defines the roles and responsibilities of both the Foundation and the Bureau. The Bureau will be working closely with the Foundation in the selection of projects and no project will be funded without our support. Only projects that benefit the water systems, lands, and/or water supplies administered by Reclamation will be funded. The Agreement further specifies that the Bureau and the Foundation will regularly and jointly review grant recipients' progress on the proposed activities and if a determination is made that progress is not sufficient, then support will be withdrawn and offered to a project on the waiting list. The Foundation will be responsible for administration of the grants and for securing appropriate accounting from grant recipients.

Question. The Foundation has a good track record of leveraging 2 to 3 non-Federal dollars for every Federal dollar. What level of non-Federal contribution has the Foundation received to support the $1,500,000 appropriated for 1996?

Answer. The goal of the program is to match the Federal contribution on a 2:1 basis—the minimum non-Federal match for any specific project is 1:1. As the grant application period ends on April 11, 1996, no grants have yet been made. The degree of non-Federal match should be known in May after the successful grant applicants have been selected.

Question. Congress also identified several projects to receive Foundation support in fiscal year 1996. Will the Bureau require a non-Federal match of not less than 1:1 for these projects? If not, why?

Answer. Reclamation's agreement does not specifically require a non-Federal match for those projects that Congress identified in the Conference Report on the Fiscal Year 1996 Energy and Water Development Appropriation Act. Discussions between the Foundation and congressional staff revealed that it was not intended that a match be required (see attached letter). The Foundation has indicated that it will seek matches for these projects, but if matches cannot be found in a timely manner, the Foundation would pass through the funds for these projects to the local entities without a match. The Foundation believes matches can be found. The presence of congressional earmarks circumvents the competitive selection process and does not facilitate creation of local partnerships.

Question. The Budget Justification refers to "Funding and/or in-kind service from other Federal agencies will be provided on some projects." Please explain this statement in more detail.

Answer. It is Reclamation's objective to find and fund projects that reflect broad community support and a watershed and/or ecosystem outlook to sustainable environmental restoration. As such, we expect that some proposals may involve not only non-Federal sponsors but a consortium of local public and private sponsors, as well as State and Federal agencies. The Bureau included this language in case other Federal agencies offered to provide assistance to locally sponsored proposed environmental restoration activities.

Question. Is it correct to assume that funding or in-kind services from other Federal agencies is not applied to the minimum 1:1 match from non-Federal sources? If other Federal resources are used, does that in fact increase the amount of non-Federal matching funding?

Answer. It is correct to assume that support from other Federal agencies could not be used to match funds provided by Reclamation. The Bureau and Foundation are only planning on applying the minimum 1:1 match to Reclamation's contribution. We consider in-kind services provided by other Federal agencies to local sponsors as evidence of support for the locally proposed project and its objectives, and will be considered as funding for a non-Federal source.

NATIVE AMERICAN AFFAIRS PROGRAM

Question. The budget includes a request for $6,759,000 for Native American Affairs Program, formerly the Indian Water Rights Settlement Program. The 1997 request is an increase of $2,402,000 over the appropriation for 1996. What accounts for this 55 percent increase over the current funding level?

Answer. Support of Federal Indian water rights settlement negotiating and implementation teams has increased due to the need for more technical studies and analysis.

The largest increase is in Technical Assistance activities which fund training programs for Reclamation personnel dealing with Indian tribes in such areas as Indian Self-Determination Act Training and cultural awareness. It also provides training to Indian people in construction management, contract administration, design and planning of their master plans and organization to manage their natural resources. It funds assistance to tribes in their efforts to become self sufficient in their water resource development and management of their natural resources, such activities include water quality studies, water development, and water operations and treatment.

The growth in the Native American Affairs Program is reflected below, rounded to the nearest thousand. Carryover funds are reflected in the total program for both fiscal year 1995 and 1996, as well as a fund transfer into the program in fiscal year 1995.

	Obligated in fiscal year 1995	Funded in fiscal year 1996	Requested in fiscal year 1997
Negotiation teams	$396,000	$511,000	$675,000
Implementation teams	334,000	442,000	590,000
Administration	1,691,000	2,253,000	2,561,000
Technical assistance	2,391,000	1,757,000	2,933,000
Total program	4,812,000	4,963,000	6,759,000

Question. Are any new activities being funded in 1997 which were not funded in 1996 and if so, at what level?

Answer. There are new technical assistance projects funded each fiscal year. Some are completed in the first year and others are multi-year projects. A list of the planned new projects for fiscal year 1997 follow:

Pacific Northwest Region:	
Lower Elwha S-Klallam Tribe	$100,000
Colville Water Quality	28,000
John Day Basin Restoration, Warm Springs Tribe	50,000
Spokane Water Quality Assessment	28,000
Subtotal	$206,000
Mid-Pacific Region: Wood River Marsh Restoration Project	$30,000
Subtotal	$30,000
Lower Colorado Region:	
Hopi Needs Assessment	$45,000
Navajo Water Delivery Study	45,000
Kaibab Paiute Water Assessment Study	45,000
Havasupai Water Resources Assessment	45,000
Subtotal	$180,000
Upper Colorado Region:	
Pine River Flood Plain Delineation, Southern Ute	$40,000
Water Resource Inventory, Navajo Nation	50,000
Chuska Lake Dam Repair, Navajo Nation	150,000
Technical Training to Tribes	20,000
Subtotal	$260,000
Great Plains Region:	
Fort Totten Waste Disposal	$18,000
Restoration of Ox Creek Channel on Turtle Mountain Indian Reservation	140,000
Santee Sioux, Water Supply Protection	40,000
Potawatomi Tribe, Watershed Protection from Wastewater	30,000
Ponca Tribe, Water Quality Assessment	71,000
Cheyenne and Arapaho Tribes Water Quality Assessment	120,000
Blackfeet, Municipal, Rural, Industrial Water Supply and Wastewater Management Assessment	120,000
Crow and Northern Cheyenne Tribes, Municipal, Rural, and Industrial Water Supply Study	20,000
Crow, Wastewater Management Study	20,000
Fort Belknap, Water Quality Management Plan	40,000
Subtotal	$619,000
Total new Technical Assistance to Tribes	$1,295,000

Question. Please provide for the record a detailed breakout of how the $6,759,000 budget request is allocated.

Answer. Please see the attached funding chart for a detailed breakout of the fiscal year 1997 funding.

[The information follows:]

BUREAU OF RECLAMATION—NATIVE AMERICAN AFFAIRS PROGRAM

[Thousands of dollars]

	Fiscal year 1996 funded	Fiscal year 1997 submitted
Regional technical assistance:		
Pacific Northwest region	193	390
Mid-Pacific region	373	387
Lower Colorado region	213	180
Upper Colorado region	198	288
Great Plains region	230	619
Total regional technical assistance	1,207	1,864
Total regional administration	643	875
Total regional costs	1,850	2,739
Commissioner's office technical assistance	550	1,069
General administration	1,610	1,686
Indian water rights settlements	953	1,265
Total program	4,963	6,759
Summary of funding sources:		
Carryover	738	
Appropriated funds	4,357	6,759
Underfinancing distributed	(132)	
Total funded program	4,963	

SAFETY OF DAMS PROGRAM

Question. Bring the committee up to date on the status and funding needs to address major dam safety issues at Folsom Dam in California and Ochoco Dam in Oregon.

Answer. After completing additional investigations and repairs at Ochoco Dam in December 1995, the reservoir is essentially full and dam performance is being closely monitored. Safety modifications are still required to the spillway, and the contract is scheduled to be awarded later in 1996 with project completion in 1997. Based on current knowledge, the $6 million allotment in fiscal year 1996 and the $900,000 request in fiscal year 1997 are the estimated remaining funds needed at Ochoco Dam. A memorandum providing a complete status and cost information on Ochoco Dam is scheduled to be transmitted to the House and Senate within the next several weeks.

At Folsom Dam there are several activities. Phase III dam safety modifications at Mormon Island Auxiliary Dam, which is a feature of the Folsom Dam and Reservoir facility, are necessary to prevent dam failure during earthquakes. The status and funding needs for that modification are discussed in the response to the next question. In addition, evaluation of dam safety issues relating to flood overtopping is ongoing. Funding needs and schedule to resolve dam safety issues related to flood overtopping depend on the outcome of these activities.

In addition to work being performed under the Safety of Dams Program, Reclamation has executed three contracts for repair work at Folsom Dam under American River Division, Central Valley Project: (1) to provide stoplogs to control the reservoir water after the failure of Gate No. 3; (2) removal of Gate No. 3; and (3) repair and modification of the seven existing gates to allow for flood operations in the winter of 1995–1996. The third contract, completed in December 1995, required extensive reinforcement of the seven existing gates, but did not complete required work to bring all gates back to full operational status without restrictions. The designs and specifications for the fourth contract, which is to complete the repairs and modifications to allow unrestricted operations, and to replace the failed Gate No. 3, have been completed and issued for bids. The fourth contract is expected to be awarded in April 1996, with completion scheduled for the spring of 1997.

After the existing gates undergo special strain and vibration testing under full reservoir loads, which should be in June, the Forensic Report investigating the causes of the gate failure will be completed. Other required work associated with the gate failure, such as repair of the damaged spillway, will be initiated later in fiscal year 1997. The funding request of $11 million for fiscal year 1997 should be sufficient assuming an additional $9 million becomes available in fiscal year 1996 through a supplemental appropriation or reprogramming.

FOLSOM DAM—DAM SAFETY ACTIVITIES

Question. The justification material shows a $5.3 million balance to complete work at Folsom Dam. Why are these funds not being requested in fiscal year 1997?

Answer. This funding is needed to complete Phase III dam safety modification work at Mormon Island Auxiliary Dam which is along the rim of the Folsom Reservoir. A modification report for the Phase I through III modifications needed to prevent dam failure during earthquakes was submitted to Congress in 1992. Phases I and II have been completed. The need for Phase III depended on measuring the actual effectiveness of the other phases which were completed in December 1995. Additional Phase III foundation improvements are needed to prevent the upstream portion of the dam from failing during an earthquake. The fiscal year 1997 request of $1,750,000 will be used to install test sections, complete Phase III designs, and begin modification construction work. The $5.3 million balance to complete is to pay for the construction work that will continue in the next year to complete the modification.

TWIN BUTTES DAM, TX

Question. The Bureau is requesting $23,000,000 to continue safety work at Twin Buttes Dam in Texas. Is this sufficient to maintain the current completion schedule of dam safety work?

Answer. Yes, funding is sufficient to maintain the current completion schedule of dam safety work.

GENERAL INVESTIGATIONS

Question. Mr. Commissioner, the budget request for the Bureau of Reclamation appears to be a continuation of the programs and policies in the current budget for fiscal year 1996. The one area which reflects a significant increase over the 1996 level of funding is the General Investigation program.

How do you explain the nearly 20 percent increase in the request for this account?

Answer. A large portion of the increase is to restore an adequate level of funding for four general planning activities, as follows: Technical Assistance to States $+654,000; Environmental and Interagency Coordination Activities $+550,000; General Planning Studies $+419,000; and Investigations of Existing Projects $+282,000. Adequate funding for these programs is extremely important to accommodate the immediate and unplanned issues generated by other Federal agencies, Congress, the Administration, and State and local entities. Flexibility is needed to respond quickly with accurate and responsible information and data when needed.

In addition, the request includes $1,675,000 for new studies, and an increase of $500,000 for the San Francisco Area Water Reclamation Study.

Question. Much of the increase is to initiate 18 new studies in fiscal year 1997. Given the budget constraints we are faced with, what is the justification for beginning 18 new studies?

Answer. These new studies are intended to identify ways to address real local and regional problems and to meet current and future water quality, quantity, and environmental needs through enhanced management of existing Federal and non-Federal facilities. These studies will address options to make more efficient use of existing supplies, and integration of existing surface/groundwater supplies with minimal structural requirements. Overall, results of these studies are not expected to result in large future Federal outlays.

PROGRAM CAPABILITY

Question. Are there any studies which received funding in 1996 that have follow-on funding requirements but have not been included in the Bureau's request for

1997? Provide a list of those for the record which shows each study, the Bureau's funding capability, and a brief explanation why no funds were requested.

Answer. All studies in the fiscal year 1996 program which required follow-on funding are included in the fiscal year 1997 request.

NEW INITIATIVES

Question. Are there any other new programs or initiatives included in the 1997 budget request, not limited to the General Investigation account, which were not funded in the current fiscal year? If there are, provide a list of those for the record which shows the amount of funding being requested.

Answer. I will provide a list for the record.

[The information follows:]

CONSTRUCTION

Efficiency Incentives Program ($4.4 million).—Reclamation is establishing this as a program to more effectively execute its ongoing responsibility to encourage efficient water use on Federal water projects. Funds under this program will be used to provide cost-sharing to local agricultural and urban water districts that receive water from Federal water projects to encourage more efficient use of water through the demonstration and implementation of water conservation efficiency measures. Reclamation is directed under the Reclamation Reform Act of 1982 to encourage water conservation and efficient use of water on Federal water projects.

Southern Arizona Water Rights Settlement Act ($7.0 million).—Prior to fiscal year 1994, funding for these activities was requested in Reclamation's budget, but SAWRSA funds were moved to BIA's budget when a new account to fund Indian water rights settlements was first proposed. The new account was The Land and Water Settlement Fund. Since then, it has proven difficult to coordinate the two requests. To simplify coordination, funding proposed for ongoing SAWRSA projects and water resources activities have been moved back to Reclamation's budget in fiscal year 1997.

Platte River Recovery Implementation ($2.5 million).—Pursuant to a memorandum of agreement signed in June 1994 by the Governors of Nebraska, Colorado, Wyoming, and the Secretary of the Interior, the parties are seeking to pursue a basinwide Platte River Recovery Implementation Program. The three states and the Federal government will share in the costs of implementing the program. Interior has proposed to contribute $2.5 million per year for 10 years, for a total of $25 million, with the remaining costs of the Program during this 10-year increment being met by the three States. Federal funding will be used for water conservation efforts, program administration, monitoring, and evaluation.

OPERATION & MAINTENANCE

Columbia-Cold Springs pumping plant ($0.2 million).—First-year funding is required for the operation of this pumping plant which is a feature of the water exchange facilities on the Umatilla Basin Project.

Operation of San Justo Dam ($0.1 million).—The operation is expected to be transferred from construction status to the operation and maintenance program for fiscal year 1997.

Mni Wiconi Project ($0.4 million).—Additional water delivery systems on this project will be transferred to the operation and maintenance status in fiscal year 1997.

CONSTRUCTION PROGRAM

Question. Does the request before the committee maintain the completion schedules anticipated with the fiscal year 1996 appropriations? If not, provide a list of those projects, whether included in your budget request or not, that have schedule delays. Please show the amount of money that would be needed to maintain the anticipated schedules, your funding capability, what the funds would be used for, and a brief explanation of why insufficient funding was requested.

Would you also provide for the record a complete list of the Bureau's capability for all projects included in the budget request, including how the additional funding would be used?

Answer. The Columbia and Snake River Salmon Recovery Program shows a one-year slip in completion date from fiscal year 1999 in the fiscal year 1996 Justifications to our current estimate of fiscal year 2000. The delay was due to an extension of time required to complete the Snake River resource review, and other biological activities.

The Mid-Dakota project now has an estimated completion date of 2004, compared to 2002 in last year's Justifications, because of funding constraints.

Completion of portions of the Los Angeles Area Water Reclamation and Reuse Program and the San Diego Area Water Reclamation and Reuse Program have been delayed 1 year, as compared to the fiscal year 1996 Justifications, due to funding constraints. Completion of portions of the San Gabriel Basin Project has also been delayed by 1 to 6 years due to litigation and program revisions by the local sponsors.

The Bonneville Unit of the Central Utah Project shows a completion schedule delay from that presented in the fiscal year 1996 Budget Justifications. Funding the Jacob-Welby water exchange is subject to a satisfactory agreement between Reclamation and the Water Districts which is currently being negotiated.

To address your questions of capability, I have also provided the following table for the record. Please remember that this additional capability was not included in the President's budget and is not a priority of the Department. We do not support the addition of funds for any project which would result in the reduction of funding for other projects included in the budget.

[The information follows:]

FISCAL YEAR 1997 CONSTRUCTION PROGRAM

Project	Fiscal year 1997 request	Additional fiscal year 1997 capability	How additional funding would be used
Yakima River basin water enhancement	$4,475,000	$1,575,000	Grants to implement and monitor the results on river diversions of specific conservation measures.
CVP, Agricultural Waterfowl Incentive Program	1,239,000	761,000	Provide for expansion of program participation.
CVP, Misc. projects program, Fish Screening Program	5,000,000	5,000,000	Expedite the fish screening program.
CVP, San Joaquin Division, land retirement	4,000,000	10,000,000	Purchasing land for wildlife protection & restoration, water conservation, and/or drainage problem resolution.
LC endangered species construction and recovery Program	2,981,000	200,000	For implementation of multi-species multi-State agreement—interim measures.
Los Angeles area water reclamation [1]	14,300,000	20,800,000	$19 million for west basin recycling project and $1.8 million for east valley water reclamation project.
San Diego area water reclamation [1]	9,340,000	28,460,000	$15.26 million for San Diego water reclamation, $9.80 million for Escondido water reclamation, $2.30 million for San Diego water repurification, and $1.10 million for Padre Dam MWD reclamation program.
San Jose area water reclamation [1]	2,760,000	12,240,000	Accelerate construction on nearly 100 miles of pipeline.
Tres Rios wetlands demo	500,000	500,000	For phase 2, NEPA and pre-construction requirements for the full scale project.
Velarde community ditch	2,000,000	600,000	Acequia rehabilitation.
Animas-La Plata, section 5 construction [3]	9,500,000	17,500,000	Ridges Basin dam and inlet conduit, Durango pumping plant.
Animas-La Plata, section 8 RF&WL	500,000	9,000,000	Land for wildlife mitigation.
Bonneville unit, CUP	7,495,000	5,645,000	Jacob-Welby water rights purchase.
Dolores	6,115,000	7,200,000	Project completion agreements with tribe and district.
Garrison [2]	21,600,000	9,000,000	State Grant MR&I Program.
Mid-Dakota [2]	2,500,000	27,186,000	Accelerate construction of the water supply system.
Mni Wiconi [2]	28,350,000	10,127,000	Accelerate construction of the water treatment plant, core pipeline, and distribution system.

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[1] Capability is based on non-Federal sponsors' estimates of fiscal year 1997 earnings to bring the Federal share of expenditures through the end of fiscal year 1997 up to the 25 percent cost-sharing criteria.

[2] Capability based on sponsors' estimates of fiscal year 1997 capability.

[3] Maximum capability based on assumption that there will be no delays in compliance with environmental laws or from other factors.

ENDANGERED SPECIES ACT

Question. Please explain the nearly doubling of Endangered Species Act recovery program expenditures requested for fiscal year 1997.

Answer. The total request for the Endangered Species Conservation and Recovery Implementation Program increased from $8.6 million in fiscal year 1996 to $14.5 million in fiscal year 1997, generally due to the number of new activities. In the Lower Colorado region, the fiscal year 1997 budget request increased from $2,170,000 to $2,981,000. This increase is for development and implementation of the Lower Colorado River Multi-Species Conservation and Recovery Program proposed in the agreement signed by the States of Arizona, California and Nevada and the Department of the Interior in August 1995. The increase is also the result of second year funding requirements for construction contracts for rearing facilities for the Colorado River razorback sucker.

In the Upper Colorado region, increases are proposed for Yampa River land acquisition, Colorado River water acquisitions for critical habitat development, and Endangered Fish Augmentation Facilities. Nearly $8 million in non-Federal cost-sharing, will provide for all but $1.5 million of the increase over fiscal year 1996.

The Pacific Northwest program was less than $200,000 for fiscal year 1996, but contracts will be awarded in fiscal year 1997 to modify fish screens and ladder structures for a total of $1.1 million.

Finally, as explained earlier, we have requested $2.5 million for participation in the development and implementation of the multi-state, basinwide Platte River Recovery Implementation Plan.

Question. How much of that money is programmed for activities related to the Reasonable and Prudent Alternative in the 1994 Jeopardy Opinion on the Central Arizona Project operation?

Answer. None of the funds requested under the Endangered Species Conservation/Recovery Projects line item are related to the Reasonable and Prudent Alternatives resulting from the 1994 Opinion for the Gila River Basin on the Central Arizona Project. This activity is funded under the Central Arizona Project construction program.

CENTRAL ARIZONA PROJECT

Question. Is any of that money programmed for activities related to reopening consultation on Central Arizona Project operations based on the significant new information provided by the Central Arizona Water Conservation District?

Answer. No, Reclamation and U.S. Fish and Wildlife Service do not plan to reopen consultation. However, the Central Arizona Project construction budget request does include funds for Reclamation, the Central Arizona Water Conservation District, and the Fish and Wildlife Service to cooperatively investigate ways to reduce the costs of the Reasonable and Prudent Alternatives required under the 1994 Biological Opinion.

Question. What money within the request for funding the Central Arizona Project is programmed for activities described in my previous two questions?

Answer. All the money requested in the fiscal year 1997 budget for the activities described in the two previous questions are included in the Central Arizona Project. Funds in the amount of $3,595,000 are requested for non-native fish eradication, native fish conservation, construction of Aravaipa and San Pedro fish barriers, fish monitoring and program administration. These activities are included within the Other Project Costs portion of the Central Arizona Project request.

Question. What money is programmed in either the CAP or ESA line item for a Biological Assessment of proposed CAP water uses in the Tucson Area?

Answer. No funding is requested in fiscal year 1997 under the Endangered Species Conservation/Recovery Project line item for a Biological Assessment associated with Central Arizona Project water deliveries to the Tucson Area.

Funds in the amount of $1,000,000 are included in the budget for this Biological Assessment under Santa Cruz Fish in the Other Project Costs portion of the Central Arizona Project request.

Question. What money is programmed under the CAP request for environmental assessments of transfers of CAP water service subcontracts from one non-Indian water user to another?

Answer. Environmental assessments for transfer of water contracts between Central Arizona Project non-Indian users is an operation and maintenance function of the project, in compliance with Reclamation policy for completed work. The cost to prepare Environmental Assessments is borne by the entities who will benefit from such transfers. If not recovered from these entities, the costs would be charged to the Lower Colorado River Basin Development Fund. Central Arizona Project operation and maintenance is funded from project revenues as directed by the authorizing legislation, the Colorado River Basin Project Act, Public Law 90–537, Section 403(d) which established the Lower Colorado River Basin Development Fund. Accordingly, no appropriations for these Environmental Assessments are requested in the fiscal year 1997 budget.

Question. How much money is programmed for completion of the Biological Assessment on operation of Lower Colorado River dams?

Answer. Within the Endangered Species Conservation/Recovery Projects line item, we have programmed $200,000 in both fiscal year 1996 and fiscal year 1997 for this biological assessment.

GLEN CANYON DAM

Question. How much money is programmed for study of a variable intake structure at Glen Canyon Dam?

Answer. A total of $400,000 is requested for the Glen Canyon Unit, Colorado River Storage Project, Section 8, Recreational and Fish and Wildlife Facilities to study the feasibility of constructing temperature control devices as part of the intake structure at Glen Canyon Dam.

CENTRAL ARIZONA REASONABLE AND PRUDENT ALTERNATIVES

Question. How much of the money requested for the fiscal year 1997 does the Bureau intend to transfer to the Fish and Wildlife Service (either directly or through an intermediary) as part of the Reasonable and Prudent Alternative in the 1994 Jeopardy Opinion on Central Arizona Project.

Answer. The CAP fiscal year 1997 budget request includes $500,000 to be provided to the Fish and Wildlife Service for non-native fish eradication programs of $250,000 and native fish conservation programs of $250,000. Reclamation is negotiating with the National Fish and Wildlife Foundation to assume, for a lump sum endowment, the annual funding responsibility for the 25-year conservation and eradication program. In the absence of such an intermediary agreement, Reclamation would provide $500,000 annually to the Fish and Wildlife Service as part of the Reasonable and Prudent Alternatives resulting from the 1994 Biological Opinion.

PROJECT LITIGATION

Question. What money within the request for funding the Central Arizona Project is programmed for the litigation between the Bureau and the Central Arizona Water Conservation District?

Answer. No appropriations are requested. The water delivery system was put into repayment and transferred to the Central Arizona Water Conservation District for operation and maintenance in September 1993. All costs associated with administering the project, including repayment contract issues, are being funded as an operation and maintenance expense. Central Arizona Project operation and maintenance expenses are funded from project revenues as directed by the authorizing Colorado River Basin Project Act, Public Law 90–537, Section 403(d) which established the Lower Colorado River Basin Development Fund.

LOWER COLORADO RIVER BASIN DEVELOPMENT FUND

Question. How much of the Bureau's operation with respect to the Central Arizona Project and Lower Colorado River will be funded by revenues accruing to the Lower Colorado River Basin Development Fund, as opposed to being funded through the congressional appropriations sought here?

Answer. All of the Central Arizona Project operation and maintenance expenses are from revenues accruing to the Lower Colorado River Basin Development Fund. An estimated $146,798,000 in Lower Colorado River Basin Development Fund revenues are programmed to be applied against project operating expenses for the United States' share of the Navajo Generating Plant ($85.4 million) the interest portion of the project repayment due the Treasury ($59.6 million) and Federal oversight ($1.8 million). Approximately $0.2 million is included within the Federal oversight costs for activities necessary to schedule Central Arizona Project water diversions from the Colorado River. Appropriations are requested for delivery of Central Arizona Project water to Reclamation customers such as the Ak Chin Indian Community.

SANTA CRUZ IN SITU COPPER MINING RESEARCH PROJECT

Question. HR 1977, the bill making appropriations for the Department of the Interior and Related Agencies for fiscal year 1996, provided funds "* * * for, and incidental to, the closure of the United States Bureau of Mines * * *" of which an amount "* * * not to exceed $5,000,000 may be used for the completion and/or transfer of certain ongoing projects * * *." The accompanying statement of the managers stated that "* * * some contracts will require oversight through a logical completion point to ensure that the Federal investment is not lost. One example is the construction associated with the Casa Grande in situ copper leaching program." Is this the same program as the In Situ Copper Mining Research Project?

Answer. Yes, the Casa Grande in situ copper leaching program is the same program as the In Situ Copper Mining Research Project.

PROJECT HISTORY

Question. Could you provide a brief history of the project?

Answer. In fiscal year 1988, congressional funding was first appropriated to the Bureau of Mines to test the technical feasibility, economic viability, and environmental compatibility of in situ copper mining at a field site near Casa Grande, Arizona. In September 1988, the Bureau of Mines and the Santa Cruz Joint Venture (SCJV) signed a cooperative agreement to conduct a research project at the Santa Cruz site. This agreement specified that Mines would fund 75 percent of the estimated $22,000,000 field works with the remaining 25 percent to be funded by the SCJV.

Site characterization studies were conducted to provide the technical data necessary to prepare detailed engineering designs and environmental permit applications. A five-spot well pattern was constructed through the proposed in situ mining test zone to provide the means to conduct hydrologic testing. Four monitor wells were also constructed through the aquifer that overlies the copper deposit. Data collection consisted of field-scale geologic characterization studies, hydrologic characterization studies including a salt tracer test, laboratory leaching and attenuation tests, and micro-scale geologic characterization studies. Hydrologic computer modeling of the test site indicated that in situ mining fluids could be contained and would not migrate to the overlying aquifer.

An Aquifer Protection Permit (APP) application was prepared by the SCJV and submitted to the Arizona Department of Environmental Quality (ADEQ) on May 28, 1992. The APP was obtained in October 1994, and Mines' responsibilities under the National Environmental Policy Act (NEPA) were completed in December 1994. Ground breaking for the project's surface facilities (solvent extraction-electro winning plant) took place in January 1995. These facilities were completed and commissioned in December 1995. The in situ mining test was initiated with the injection of dilute sulfuric acid leach solution during the week of February 11, 1996.

TERMS OF INTERAGENCY AGREEMENT

Question. The project has been a program of the U.S. Bureau of Mines and has been recently transferred to the Bureau of Reclamation. Could you provide an explanation of the terms of the Interagency Agreement?

Answer. A Memorandum of Understanding (MOU) between the Bureau of Mines and the Bureau of Reclamation to bring eight specific Bureau of Mines research projects to an orderly closure was signed and became effective on February 2, 1996. It will terminate upon completion/closeout of the last project, depletion of available funds or April 30, 1998, whichever occurs first. The MOU was entered into pursuant to the Economy Act, 31 U.S.C. 1535. The Bureau of Mines has allocated $5.6 million to reimburse Reclamation for salaries and benefits, lump sum annual leave, severance pay, unemployment compensation overhead, and all administrative costs associated with the closure of the eight projects. The MOU specifies that the projects must be conducted within allocated project funding resources and time limitations.

CASA GRANDE PROJECT

Question. How much of the approximately $5,000,000 is allocated to the Casa Grande project?

Answer. Of the $5,000,000 appropriated by Congress, $3,700,000 is allocated to the Casa Grande Project.

Question. For what purposes will the funds be used?

Answer. These funds will be used to support technical personnel needed to evaluate the field data, complete the technical documentation, environmental compliance with regard to NEPA, publication of the in situ mining design manual and technology transfer, all to insure that the Federal investment is not lost and that the Federal government is not liable for future environmental clean up activities.

Question. Is this money to be cost-shared by the private sector partner in the project? If not, why not?

Answer. The fiscal year 1996 funds were provided for oversight, through a logical completion point, to protect the Federal interest, and to close out the project in an orderly manner. In our opinion, it was not the intent of Congress to require that these funds be cost-shared.

IN-HOUSE ACTIVITIES

Question. Describe the in-house activities which will be performed in support of the field test.

Answer. The in-house activities include: facilitation and oversight to bring the entire project to a logical conclusion; publication of all relevant technical information and other technology transfer activities; and activities to assure that the project is closed in an environmentally acceptable manner.

APPROPRIATED FUNDS FOR FIELD TEST

Question. How much has been appropriated for the field test? Please provide a breakdown by fiscal year. What is the cost-sharing requirement for these funds? Have all of these funds been obligated and expended? How much has been provided in matching funds?

Answer. A funding history for the cooperative agreement with the Santa Cruz Joint Venture is shown below. Industry is contributing 25 percent of the cost of the field work. The total appropriations for the field work through fiscal year 1996 is $16,350,000, all of which has been obligated.

Year	Appropriated		Total appropriated	Industry contribution
	Contract	In-House		
1988	$2,500,000	$1,000,000	$3,500,000	$518,240
1989	3,000,000	500,000	3,500,000	307,029
1990	5,000,000	500,000	5,500,000	2,422,398
1991	2,700,000	1,250,000	3,950,000	846,000
1992	950,000	500,000	1,450,00	247,667
1993	1,000,000	750,000	1,750,000	313,333
1994	1,000,000	1,000,000	2,000,000	313,333
1995	200,000	500,000	700,000	62,667
1996		3,700,000	3,700,000	
Total	16,350,000	9,700,000	26,050,000	5,030,667

TERMS OF CURRENT CONTRACT

Question. What are the terms and dates of the current contract? Have sufficient funds been appropriated to date to cover the Federal obligations to the contract? If not, how much in additional funds would have to be appropriated in fiscal year 1997?

Answer. Reclamation is engaged in a cost-sharing Cooperative Agreement with the Joint Venture to conduct field test activities for in situ mining. This Cooperative Agreement runs through September 16, 1998. Currently available and obligated funds will allow field test operations through July 1997. Reclamation researchers will analyze data from the field tests. Sufficient funds have been appropriated to cover the Federal obligations of the Cooperative Agreement.

LOGICAL COMPLETION POINT

Question. What would you identify as "* * * the logical completion point to ensure that the Federal investment is not lost."?

Answer. In our opinion, the logical completion point would be, to the extent possible within available funds, the completion of all technical publications and technology transfer activities resulting from the field test and the completion of the final generic design manual; completion and evaluation of all closure activities including all environmental considerations; and formal closure and final auditing of all contract related activities once the first two objectives are met.

PROJECT PAYOFFS

Question. What are the basic expectations for the project "payoffs"?

Answer. The stated goals of the project are to demonstrate a new, more environmentally sound mining technology and to provide the technical information for commercialization of this new and emerging technology by the mining industry.

SHUTDOWN PROCEDURES

Question. Please describe the shutdown procedures for the project.

Answer. Ninety days after giving notice of its intent to cease operations, the Santa Cruz Joint Venture must submit to the Arizona Department of Environmental Quality a closure plan. Closure procedures would also include publication of technical results, facility decommissioning, and contract closeout for the cooperative agreement.

Question. What, if any, continuing liabilities will the Federal government have at the site?

Answer. The Federal government and Santa Cruz Joint Venture will hold a liability at the site for a 5-year period following completion of the in situ mining test. This period represents the time frame through which post-closure monitoring is required under terms of the Arizona aquifer protection permit. Computer modeling and laboratory studies indicate that mining solutions have little chance of escaping from the mining zone both during and after completion of the project because of the nature of the surrounding rock. This means that the potential liability should be limited. Under the MOU with the Bureau of Reclamation, the Bureau of Mines will remain responsible for all contingent liabilities associated with all eight projects.

COMPATIBILITY WITH BUREAU MISSION

Question. Is the project compatible with the current mission of the Bureau of Reclamation? How?

Answer. The Department requested and the Bureau of Reclamation agreed to assume the responsibility for orderly completion of several of the Bureau of Mines research projects, primarily due to Reclamation's administrative and project management capabilities. One of the objectives of the project was to demonstrate that the in situ mining process is a feasible extraction method for low grade copper ores which could be carried on with minimum damage to the local and regional natural environment. To the extent that water resources are a key aspect of the environment, the project is not incompatible with Reclamation's mission to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. However, Reclamation does not plan to conduct further research in this area.

PROJECT BENEFITS

Question. Will there be any benefits to the project outside of mining? Please describe.

Answer. Yes. In situ leaching can be a cost effective technique for accelerating closure of inactive or abandoned mines where long term production of acid drainage and mobilization of toxic metals in ground and surface water is a concern. Because in situ leaching is essentially an acceleration of the weathering process which produces acid mine drainage, it can be employed during final phases of a mine operation to eliminate the long term potential of low grade ore reserves or mine wastes for production of acid drainage after mine abandonment. This could significantly reduce the environmental cleanup costs after mining.

Recent in situ leaching technology advances show that the utilization of permeable, chemical/reactive barriers can significantly reduce the spread of groundwater contamination. This is a passive technique that could be more economical than conventional cleanup techniques such as haul and treat. In situ ground water remediation is recognized as an important component of environmental technology used to clean up metal contamination in aquifers. The underlying hydrologic, geochemical and microbial processes involved in reactive transport of copper and other metals during in situ leaching are identical to those needed to remove metal contaminants. Techniques that are being developed under this project for containment and recovery of leach solution in fractured bedrock aquifers (including flow manifolds and reactive barriers) are readily transferable technology that can be applied to subsurface remediation of metal contaminants in ground water.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF HON. H. MARTIN LANCASTER, ASSISTANT SECRETARY OF THE ARMY, CIVIL WORKS

ACCOMPANIED BY:

LT. GEN. ARTHUR E. WILLIAMS, CHIEF, CORPS OF ENGINEERS

MAJ. GEN. STANLEY G. GENEGA, DIRECTOR OF CIVIL WORKS

GARY LOEW, ACTING CHIEF, PROGRAMS MANAGEMENT DIVISION, DIRECTORATE OF CIVIL WORKS

OPENING REMARKS

Senator DOMENICI. We now turn to the U.S. Army Corps of Engineers and I am pleased to welcome Mr. Martin Lancaster, Assistant Secretary of the Army for Civil Works; along with Lieutenant General Williams, Chief, the Corps of Engineers; and Maj. Gen. Stanley Genega, Director of Civil Works; and Gary Loew, Acting Chief, Programs Management Division, Directorate of Civil Works.

Thank you all for coming. We will start with you, Mr. Secretary.

Mr. LANCASTER. Yes; Mr. Chairman.

Senator DOMENICI. I might observe that it has been a long time since we had an Assistant Secretary. We almost always have had Acting Assistant Secretaries. So we are glad to have you. That is different. I hope you will be there for a couple of years—well, I do not know. Maybe—[Laughter.]

Maybe from my standpoint——

Mr. LANCASTER. I will not tell Mr. Barbour that you said that.

Senator DOMENICI. I will welcome you at least for another year. [Laughter.]

Please proceed.

STATEMENT OF H. MARTIN LANCASTER

Mr. LANCASTER. Thank you, Mr. Chairman, and thank you for the opportunity to testify today on the President's fiscal year 1997 budget for the Army Corps of Engineers. As you have indicated, I am accompanied by Lt. Gen. Art Williams, Maj. Gen. Stan Genega, and Mr. Gary Loew. I propose to summarize my prepared statement, but I would ask that the complete statement be included in the record.

Senator DOMENICI. Without objection.

FISCAL YEAR 1997 BUDGET REQUEST

Mr. LANCASTER. I am pleased to be in a position where I can contribute to the debate about the future of the Army's Civil Works Program in addressing the Nation's critical water resources challenges. The President's budget for fiscal year 1997 and the outyears shows that the funds for domestic discretionary spending must continue to decline in order to balance the budget. Ways must be found to both reduce total costs and shift more of the costs for providing services from the general taxpayer to project beneficiaries.

The President's budget includes $3.49 billion for the fiscal year 1997 Army Civil Works Program. This program would require $3.29 billion in new discretionary Energy and Water Development appropriations, slightly greater than the level of the fiscal year 1996 appropriation.

The new budget provides for continuing studies, design and construction, a healthy level of funding for maintenance and rehabilitation of the existing infrastructure, continuing and new investments in research and development, and new water resources studies and projects. The total investment represented by these new studies, projects, and research is $588 million, of which the Federal share is $414 million and the non-Federal share $174 million.

Today I will share with the subcommittee the administration's proposals to restructure the civil works missions of the Corps. I am committed to working closely with the Congress and others within the administration in pursuing these new proposals.

PROGRAM AND POLICY CHANGES

The budget justification documents for proposed new flood damage reduction projects are based on a 50–50 cost sharing, as well as on proposed requirements for new non-Federal flood plain management activities. This approach is expected to encourage wise use of flood plains by States and communities and to reduce overall Federal expenditures.

Examples of specific flood plain management activities which non-Federal sponsors would be expected to carry out include public information and education on flood hazards, flood plain regulation to promote sound use and to reduce future flood damages, storm water runoff controls, and preservation of open space.

The fiscal year 1997 budget, supported by the civil works legislative program, proposes to include dredged material disposal facility costs within the scope of total shared project costs and to expand allowable uses of the trust fund to cover the Federal share of the costs of constructing, operating, and maintaining these facilities, as well as of dredging and disposal facilities for contaminated sediments, and of the mitigation of environmental impacts resulting from Federal dredging activities.

HARBOR MAINTENANCE DREDGING POLICY

Regarding maintenance of recreation harbors, the administration believes these projects generate significant regional and local benefits and that users can reasonably be expected to finance the required maintenance. We anticipate that, beginning in fiscal year 1998, the civil works budget would not include funding to dredge harbors without commercial traffic unless a new, dedicated source of funding can be established based on the beneficiary pay principle.

The administration also is proposing to discontinue maintenance of low commercial use harbors beginning in fiscal year 1998. I recognize, however, that many small communities whose incomes are derived principally from commercial fishing and related activities would be hurt by such a policy. In addition to these communities, I realize there are areas in Alaska, Hawaii, and in certain U.S. territories where a community, because of its geographic location, receives most of its subsistence needs from its harbor.

These communities need to be given appropriate consideration in applying any new policy. I will be happy to work with Congress and other affected interests to develop a rational policy that will meet our deficit reduction goals in a way that is both equitable and efficient and which recognizes the special needs of these communities.

The administration believes that shore protection projects that support mainly recreational activities and that provide substantial regional income to the State and local economies can be undertaken by non-Federal interests. In many cases, the cost of the investment would represent a small fraction of the income it would generate.

It is unlikely that sufficient Federal funds will be available in the future to continue the prior level of Federal participation in this area and still achieve deficit reduction goals. We recognize, however, that Federal involvement may be required in some instances. I would be happy to work with you on the conditions to which this policy should be applied.

Exceptions for new and recently initiated activities funded in the fiscal year 1997 budget do not involve significant placement of sand, but rely on other structural measures to protect existing development and public infrastructure in areas subject to damage by hurricanes and other coastal storms.

In order to reduce budgetary impact in the short run and guarantee sponsor commitment to costly new engineering and design efforts, the budget reflects up-front financing by non-Federal project sponsors of the non-Federal share of the costs of new engineering and design efforts.

NEW STUDIES AND PROJECTS

The new investments included in the fiscal year 1997 budget are: 3 reconnaissance studies, all of which are for flood damage reduction; 1 preconstruction engineering and design new start; 11 construction new starts; 4 major rehabilitation new starts; 1 deficiency correction; 1 levee reconstruction; and 1 new research and development program to address environmental impacts associated with dredging.

On February 19, I joined the Vice President in the Everglades, where he announced the Clinton administration's comprehensive Everglades restoration program. I am proud to say that the Corps will be a major player in this initiative. The budget includes $39.5 million for various ongoing activities associated with the restoration of the south Florida ecosystem.

COLUMBIA RIVER FISH MITIGATION

The fiscal year 1997 budget includes $107 million to continue the Corps' involvement in the Pacific Northwest salmon recovery program to protect and rebuild Snake River stocks of Pacific salmon listed under the Endangered Species Act. The administration has included $41 million in the fiscal year 1997 budget for a full program of continuing and new work under the continuing authorities program. Earlier this month, I notified the subcommittee of our plan to reprogram additional fiscal year 1996 funds into the continuing authorities program. I am pleased to report that those funds are now being allocated as needed to complete underfunded phases and to move forward on many small projects.

Over the course of the last year, the Corps has made commendable improvement in expending available funds. In previous years, program execution schedules tended to be overly optimistic. As part of our continuing effort to improve the Corps' efficiency, effectiveness, and responsiveness, I am personally committed to finding ways to further shorten the Corps study process.

RESTRUCTURING OF CORPS OF ENGINEERS

Finally, I would like to bring the subcommittee up to date on Corps restructuring. Last October, the role of divisions was significantly changed and those offices were restructured. Division offices now concentrate on four functions: command and control, regional interface, program management, and quality assurance. Technical review is now performed at the district level, and all policy review is now performed in Washington.

Many other business process changes have been implemented to streamline work flow and provide front-line offices with increased authority.

Following consideration of the many comments received from project sponsors, interest groups and Corps employees, guidelines for district restructuring were sent to Secretary West, but have not yet been approved. Under these guidelines, primary authority would be delegated to the division commanders to restructure their subordinate districts.

The Energy and Water Development Appropriations Act for Fiscal Year 1996 stipulated that the Secretary was to develop a plan to reduce the number of its division offices to a total of six to eight, without closing or changing the civil works functions of any district offices. Earlier this month, the Chief of Engineers and I released a draft plan, which was provided to this subcommittee.

If the Secretary approves this plan, the number of Corps division offices would be reduced to a total of eight, while complying with the other relevant provisions of the appropriations act. The recommended plan will be sent to the Secretary for his final approval soon.

PREPARED STATEMENT

In conclusion, I would emphasize my commitment to work with this subcommittee and other interested parties to ensure that the Army's Civil Works Program in the Corps of Engineers continues to serve the vital interests of the Nation in a way that supports and contributes to the President's commitment to balance the Federal budget. I ask for your support as we move forward to meet these challenges.

Thank you, Mr. Chairman. This concludes my statement.

[The statement follows:]

PREPARED STATEMENT OF H. MARTIN LANCASTER

INTRODUCTION

Mr. Chairman and Members of the Subcommittee: thank you for the opportunity to testify today on the President's fiscal year 1997 budget for the Civil Works program of the Army Corps of Engineers. I am pleased to be in a position where I can contribute to the debate about the future of the Army Civil Works program in addressing the Nation's critical water resources challenges. Accompanying me are Lieutenant General Arthur E. Williams, the Chief of Engineers; Major General Stanley G. Genega, the Director of Civil Works; and Mr. Gary A. Loew, the Acting Chief of the Civil Works Programs Management Division.

My appointment as the Assistant Secretary for Civil Works comes at a time when the Corps, like all Federal agencies, has been re-examining its roles and missions with an overall goal of reducing the scope of the Federal Government and eliminating the Federal budget deficit. One of the primary objectives of this re-examination is to determine which Federal agency activities could more appropriately be conducted at the State and local levels.

On February 5th, the President submitted the outline of his budget for fiscal year 1997 and the outyears leading to a balanced budget. That outline shows that the funds available for domestic discretionary spending must continue to decline in order to balance the budget. Therefore, ways must be found to both reduce total costs and shift more of the costs of providing services from the general taxpayer to project beneficiaries.

My statement will cover the following subjects: An overview of the fiscal year 1997 Civil Works budget; Fiscal year 1995 performance and the fiscal year 1996 program; New policies and legislative proposals reflected in the fiscal year 1997 budget; New investments and continuing program highlights of the budget; and the status of Corps of Engineers restructuring.

OVERVIEW OF THE FISCAL YEAR 1997 CIVIL WORKS BUDGET

The President's budget includes $3.49 billion for the fiscal year 1997 Army Civil Works program. The fiscal year 1997 budget would fund a balanced program focussed principally on commercial navigation, flood damage reduction, and environmental restoration. While this program does not keep all projects on schedules previously announced to Congress, it does provide for continuing studies, design and construction; a healthy level of funding for maintenance and rehabilitation of the existing Civil Works infrastructure; continuing and new investments in research and development; and new water resources studies and projects. The latter are consistent with the proposed policies to increase non-Federal involvement, strengthen flood plain planning and management at the State and community level, and reduce Federal expenditures.

The Civil Works budget requires $3.29 billion in new discretionary Energy and Water Development appropriations, slightly greater than the level of fiscal year 1996 appropriations. In addition, it reflects the transfer of $44 million from the Coastal Wetlands Restoration Trust Fund, $13 million in mandatory permanent appropriations, and $136 million in non-Federal cash contribution through the Rivers and Harbors Contributed Funds account. Nearly 21 percent of the budget would be derived from user fees.

The new appropriations request is distributed as follows: $142.5 million for General Investigations; $914 million for Construction, General; $1.663 billion for Operation and Maintenance, General; $112 million for the Regulatory Program; $292.5 million for Flood Control, Mississippi River and Tributaries; and $168.9 million for other accounts. Table A, attached to this statement, shows the Civil Works budget by account and source of funding, including anticipated non-Federal contributions.

The fiscal year 1997 Civil Works budget proposes a new investment program with a total cost of $588 million, of which the Federal share is $414 million. This investment program would initiate water resources studies, design, construction, rehabilitation and research. The weighted average remaining benefit-to-cost ratio for these new investments is estimated to be 2.4 to one.

The Army will transmit to Congress its proposed legislation for a 1996 Water Resources Development Act (WRDA) after completion of Administration review. The bill will include authorizing language related to several policy proposals in the fiscal year 1997 budget, as well as language to authorize or reauthorize a number of new construction starts in the budget. These projects are proposed for funding contingent on receiving the necessary project-specific authorization and contingent on authorization, as needed, to reflect revised cost sharing, financing and program participation proposals.

FISCAL YEAR 1995 PERFORMANCE

Several recent Executive and Legislative Branch initiatives have been directed at improving Government services and measuring achievement based on output and outcomes. Among these initiatives are the President's National Performance Review and the Government Performance and Results Act (GPRA).

During fiscal year 1995, significant progress was made in the development of performance goals and measures required under GPRA. Performance goals will be presented in annual performance plans, and performance measures will be adopted to track the attainment of those goals. While performance measures may not be available for all goals initially, it is expected that they will be developed over time to allow Congress, the Administration, sponsors and other stakeholders to assess the progress we are making in implementing the general goals of this plan.

Consistent with the objective of GPRA to move toward measuring performance in terms of outputs and outcomes, the Army Civil Works Program Annual Performance Report completed last December reported the following performance: In fiscal year 1995, the Corps completed 96 percent of scheduled reconnaissance studies, a record for recent years. However, the Corps completed only 46 percent of scheduled feasibility studies, a marked decline from past years which has prompted the initiation of a concerted improvement effort on the part of the Corps. On a more positive note, the Corps completed 98 percent of scheduled designs in fiscal year 1995; 90 percent of scheduled construction contract awards; and 99 percent of scheduled Continuing Authorities Program construction awards, which achieved another performance record. With the exception of feasibility studies, program performance has dramatically improved since 1993.

The Corps has made significant improvement in recent years in shortening the time from initiation of studies to initiation of project construction. I am personally committed to finding ways to further shorten the Corps study process as part of our efforts to improve agency efficiency, effectiveness, and responsiveness.

The Secretary of the Army has established a process for regular performance reporting called the Quarterly Army Performance Review (QAPR). Through the QAPR, we report quarterly to the Secretary on the performance of the Civil Works program. During fiscal year 1995, the Corps has made great strides in improving its performance. Each Corps office established a realistic schedule of expenditures. Overall for fiscal year 1995, the Corps expended 95 percent of scheduled Civil Works funds and significantly reduced its carryover. This was a commendable improvement over previous years, when program execution schedules tended to be overly optimistic.

THE FISCAL YEAR 1996 PROGRAM

We were pleased that the Energy and Water Development Appropriations Act for Fiscal Year 1996 was passed by Congress and signed by the President on November 13, 1995, thereby enabling the Corps to avoid the shutdowns that affected much of the Federal Government. Careful management of available funds is required to meet contractual commitments and to make meaningful progress on the work added by Congress, as well as on budgeted studies and projects.

Table B, attached to this statement, summarizes information presented in the QAPR report on the Corps' Civil Works program during the first quarter of fiscal year 1996. This table shows the total funding available over the last two years, the Corps' success in drawing down its unexpended carryover, and the improvement in fiscal year 1995 in accomplishment of scheduled expenditures.

The President's request for fiscal year 1996 emergency supplemental appropriations, transmitted to Congress on March 5, included $165 million for the Civil Works program. Of this amount, $135 million is for the Flood Control and Coastal Emergencies account, where the funds are needed for three purposes: (1) to repair damage to non-federally operated and maintained levees and other flood control works located in States affected by the Northeast and Northwest floods of 1996; (2) to reimburse other Civil Works accounts for funds transferred earlier this year, under the emergency authority of the Secretary, to partially finance the repair of damages from 1995 floods and hurricanes; and (3) to have contingent funding available in the event of additional emergencies during the spring storm season. The remaining $30 million, for the Operation and Maintenance, General, account, is needed to repair damages to the Corps' own projects from the Northeast and Northwest floods of 1996.

FISCAL YEAR 1997 PROPOSALS TO INCREASE NON-FEDERAL INVOLVEMENT

Last year, the budget for the Civil Works program proposed several major policy changes. We recognize that these proposals did not receive support in this Committee or in Congress overall. Today I will share with the Subcommittee revised proposals to restructure the Civil Works missions of the Corps. I am committed to working closely with Congress and with others within the Administration as we consider these new proposals.

Proposed Flood Damage Reduction Policy

The Administration committed significant time and energy in 1995 to examining alternatives to the flood damage reduction policy proposed last year. The fiscal year 1997 Civil Works program represents the Administration's new proposed policy for determining which flood damage reduction projects should qualify for Federal support. Under this policy, the fiscal year 1997 budget proposes to start 9 new flood damage reduction projects and one levee reconstruction project. The budget justification documents for these projects are based on 50–50 cost sharing, as well as on proposed requirements for specific non-Federal flood plain management activities beyond the current requirement to participate in the National Flood Insurance Program.

Active flood plain management at the State and community levels is critical to reducing Federal expenditures for flood recovery and disaster assistance. The Administration believes that this approach will encourage wise use of flood plains by States and communities and will reduce dependence on structural flood damage reduction projects. Examples of specific flood plain management activities which non-Federal sponsors would be expected to carry out under this proposal include public information and education on flood hazards within the community; flood plain regulation to promote sound use and to reduce future flood damages; storm water runoff controls; and preservation of open space. This policy would apply to projects for which cost sharing agreements have not yet been signed.

The proposed reduction in the Federal share of project costs is critical in planning for Corps' activities in the future, as the Federal budget is tightened. Stretching the Federal dollar will help to ensure that the Corps can continue these important missions.

Commercial Navigation

One of the biggest challenges facing the Corps' navigation program is the disposal of dredged material. World trade is an essential element of our national economy, dictating that our navigation channels and harbors be improved to accommodate the larger ships in the world fleet and that the maintenance of existing navigation projects be timely and efficient. At the same time, we also recognize that our Nation's ocean, coastal and riverine resources are important natural, economic and recreational resources that must be protected, conserved, restored and sustained. Managing the disposal of dredged material in a way that meets both national economic and environmental objectives takes the cooperation and partnership of several Federal agencies (the Corps, the National Oceanic and Atmospheric Administration, the Fish and Wildlife Service, and the Environmental Protection Agency), the States, the port communities, and environmental interests. The need for this increased cooperation and coordination was recognized in the December 1994 report of the Interagency Working Group on the Dredging Process, and we are making significant progress in achieving that increased level of coordination and cooperation.

Last June, President Clinton endorsed a Federal dredging policy which committed to maintaining and dredging our ports and navigation channels to support international trade in a way that ensures the protection of the Nation's environment. The following month, all Federal agencies involved in the dredging process signed a charter to form a National Dredging Team to facilitate communication, coordination, and resolution of dredging issues among the participating Federal agencies. Under the leadership of the National Dredging Team, similar teams are being formed on a regional basis. The Corps is also active in a partnering initiative with the Nation's ports through the American Association of Port Authorities to explore ways to improve the efficiency of the project development and implementation process and to empower the ports to be more involved in project planning, design, execution, and management.

The fiscal year 1997 budget, supported by the Civil Works legislative program, proposes to include dredged material disposal facility (DMDF) costs within the scope of total shared project costs. Consistent with this change, the Army proposes to expand allowable uses of the HMTF to cover: (1) the Federal share of the costs of constructing DMDF's associated with all Federal navigation projects for commercial harbors; (2) the Federal share of the costs of DMDF operation and maintenance associated with Federal navigation projects; and (3) the Federal share of the costs of dredging and disposal facilities for contaminated sediments in or affecting Federal navigation channels and of the mitigation of environmental impacts resulting from Federal dredging activities.

Dredging of Recreation and Low Commercial Use Harbors

Regarding maintenance of recreation harbors, the Administration believes these projects generate significant regional and local benefits and that users can reasonably be expected to finance the required maintenance. We anticipate that, beginning in fiscal year 1998, the Civil Works budget would not include funding to dredge harbors without commercial traffic unless a new, dedicated source of funding can be established based on the "beneficiary pay" principle.

The Administration also is proposing to discontinue maintenance of low commercial use harbors beginning in fiscal year 1998. I recognize, however, that many small communities whose incomes are derived principally from commercial fishing and related activities would be hurt by such a policy. In addition to these communities, I realize that there are areas in Alaska, Hawaii and certain U.S. Territories where a community, because of its geographic location, receives most of its subsistence needs from its harbor. These communities need to be given appropriate consideration in applying any new policy. I would like to work closely with Congress and other affected interests to develop a rational policy that will meet our deficit reduction goals in a way that is both equitable and efficient and which recognizes the special needs of these communities.

Proposed Hurricane and Storm Damage Reduction Policy

The Administration believes that shore protection projects that support mainly recreation activities and that provide substantial regional income to the State and local economies can be undertaken by non-Federal interests. In many cases, the cost of the investment would represent a small fraction of the income it would generate. Moreover, it is unlikely that sufficient Federal funds will be available in the future to continue the prior level of Federal participation in this area and still achieve deficit reduction goals. We recognize, however, that Federal involvement may be required in some instances. I would be happy to work with you on the conditions to which the policy should be applied. Exceptions receiving funding in the fiscal year 1997 budget do not involve significant placement of sand, but rely on other structural measures to protect existing development and public infrastructure in areas subject to damage by hurricanes and other coastal storms.

Up-front Financing for New Preconstruction Engineering and Design (PED)

In order to reduce budgetary impact in the short-run and guarantee sponsor commitment to costly new engineering and design efforts, the budget reflects up-front financing by non-Federal project sponsors of the non-Federal share of the costs of new PED efforts. This would change the current practice of Federally financing PED costs and then recovering the non-Federal share during the construction phase. We can no longer afford the luxury of federally financing all of these costs. Consequently, for new PED activities in fiscal year 1997, whether or not the feasibility study was cost-shared, we will ask the sponsor to finance 25 percent of PED costs concurrently with Federal financing. Adjustments to reflect final project cost allocations will be made to ensure the overall cost sharing is consistent with applicable law.

Regulatory Program User Fees

The Administration is proposing legislation to establish a more rational system of permit application fees for the Corps regulatory program. In the current system, most permit fees do not cover the cost of collection, let alone the cost of administering the program. Under this proposal, the fees for individual landowners would be eliminated, and fees for commercial applicants would be increased to cover the costs of evaluating and processing the permits, using a sliding scale based on the complexity of the application. If enacted, the revenues from this proposal would partially offset the general revenue requirements of the program.

NEW INVESTMENTS IN THE FISCAL YEAR 1997 CIVIL WORKS PROGRAM

The budget provides for initiation of new Civil Works investments with a total cost of $588 million, of which the Federal share is $414 million and the non-Federal share is $174 million. Initial funding for these investments, in the amount of $28.3 million, is included in the fiscal year 1997 budget. The investment program includes studies, design, construction, rehabilitation and research. Within the total Federal share, the cost of rehabilitating 3 hydroelectric power projects would be repaid to the Treasury out of revenues from the sale of power generated at Federal projects.

The new investments included in the fiscal year 1997 budget are 3 reconnaissance studies, all for flood damage reduction; one preconstruction engineering and design new start; 11 construction new starts; four major rehabilitation new starts; one deficiency correction; one levee reconstruction; and one important new research and development program to address environmental impacts associated with the Corps dredging activities. Under the "seamless funding" practice followed in recent years, the budget also includes funding to proceed into the PED phase, either from cost-shared feasibility studies or from restudies of authorized projects, on 19 other projects, based on non-Federal sponsors providing up-front financing for 25 percent of the costs. Attached to this statement is a table listing the new construction work funded in the fiscal year 1997 budget (see Table C).

The flood damage reduction construction new starts are budgeted contingent on consistency with new flood damage reduction policy and the willingness of the non-Federal sponsors to meet changed cost sharing and flood plain management requirements reflected in that new policy.

On March 19, I wrote to the local sponsors of all flood damage reduction new starts and all PED activities to be initiated during fiscal year 1997 to inform them of the proposed changes in cost sharing and financing and to request affirmations of their continued interest and ability to proceed during fiscal year 1997 under the proposed new policies.

This year, the Appendix to the President's Budget includes tables showing the estimated remaining Federal costs of construction of all budgeted Corps projects, including both the new starts discussed above and continuing projects already under way. For projects in the Corps' Construction, General, account, the remaining Federal cost of construction is $15.8 billion. For projects in the Flood Control, Mississippi River and Tributaries, account, the remaining Federal cost of construction is $4 billion.

HIGHLIGHTS OF THE FISCAL YEAR 1997 CONTINUING PROGRAM

South Florida Ecosystem Restoration

The fiscal year 1997 budget includes $39.5 million, within the total funding for associated projects, for the restoration of the South Florida ecosystem, a major environmental activity to which we are committed. On Monday, February 19th, I joined Vice-President Gore in the Everglades National Park, where he announced the Clinton Administration's comprehensive Everglades restoration program. I am proud to say the Corps is a major player in the initiative.

The Administration is proposing a new Everglades Restoration fund in the Department of the Interior. This fund would finance portions of Corps projects, under proposed legislation, related principally to non-Federal land acquisition responsibilities.

These continuing activities include the Kissimmee River Restoration, for which the budget includes $3 million in addition to available carryover funding from prior years; the Modified Water Deliveries to Everglades National Park; the Canal 111 portion of the Central and Southern Florida Project; and modification of the Canal 51 project to provide for water supply for the Loxahatchee National Wildlife Refuge. The Army also was asked by the Administration to initiate a study to develop a comprehensive restoration plan for South Florida, the Central and South Florida Restudy. The purpose of this study is to determine the feasibility of structural and operational modifications to the Central and Southern Florida Project to restore the Everglades and Florida Bay ecosystems, while providing for other water-related demands. This study exemplifies the Corps ability to conduct comprehensive watershed studies involving complex tradeoffs among competing project purposes. During the reconnaissance phase, the Corps identified environmental, water quality, water supply, and flood problems in the study area. During the feasibility phase, the Corps will evaluate potential project elements that preliminary modeling showed to be productive in restoring historic hydrologic functions.

Pacific Northwest Salmon Recovery Program

The fiscal year 1997 budget includes $107 million to continue the Corps involvement in the Pacific Northwest Salmon Recovery program to protect and rebuild Snake River stocks of Pacific salmon listed under the Endangered Species Act. The Corps will continue to construct and improve juvenile fish bypass systems for its eight dams on the Columbia and Snake Rivers. In addition, funding for a mitigation analysis is included in this program. The analysis is a comprehensive and regionally coordinated effort to assist in determining reasonable measures for restoring the listed salmon stocks.

Regulatory Program

The budget includes $112 million for the Corps Regulatory Program. The increase of $11 million over fiscal year 1996 appropriations is necessary to support completion of initiatives already underway that were part of the President's 1993 Wetlands Plan, as well as to cover cost increases in this personnel-intensive program. The major initiatives and their status are an administrative appeals process, increased State involvement, and a wetlands delineator certification program. Final regulations for the administrative appeals process will be published in the spring of 1996 with full implementation in early fiscal year 1997. This process will allow the regulated public to contest regulatory decisions without going to court. The Corps will undertake an intensive, $2.5 million effort to increase State responsibility for wetlands regulation, including encouraging the development of State Programmatic General Permits and allowing States to assume permitting authority in some areas. The Corps also is developing a national program for the training and certifying of non-Federal individuals as wetlands delineators. Implementation will begin in the spring of 1996, with fiscal year 1997 start-up costs for full implementation in all districts amounting to approximately $500,000. The availability of this non-Federal technical expertise is expected to increase the quality of permit applications and allow the Corps to process applications more quickly.

Continuing Authorities Program

In recognition of the importance of the Corps' Continuing Authorities Program to Congress and non-Federal sponsors, the Administration has included $41 million in the fiscal year 1997 budget for a full program of continuing and new work. Recent delegations of authority and approval of standard cost sharing agreements for many of these activities will help to ensure a more efficient program able to respond quickly to the needs of local communities. Earlier this month, I notified this Subcommittee of our plan to reprogram additional funds into the Continuing Authorities Program. I appreciate your acknowledgment of that reprogramming, and I am pleased to report that funds are being allocated as needed to complete underfunded phases and to move forward on many small projects.

Mississippi River and Tributaries (MR&T) Program

The budget of $292.5 million for the MR&T program includes funding to initiate one construction new start for flood damage reduction, contingent on authorization of a new Federal policy, as discussed previously, affecting cost sharing and flood plain management. This funding level treats MR&T continuing construction schedules comparably with those in the Construction, General, account. Within this total, the amount for the streambank Demonstration Erosion Control (DEC) program will provide for the phase out of the Corps' involvement in the DEC. Limited new construction contracts are included as necessary to protect work that is currently in place. In addition, the budget would continue necessary engineering and design for future work, in order to turn the DEC over to the local sponsor in an orderly manner.

Section 1135 Environmental Modifications

The fiscal year 1997 budget includes $15 million for the program authorized by Section 1135 of the Water Resources Development Act of 1986, as amended, for structural or operational modifications to existing Corps projects for ecosystem restoration purposes. Section 1135 projects have ranged from small wetland restoration projects to modifications of fish ladders and the restoration of river or stream oxbows. Since the initial funding for the Section 1135 Program in 1991, twelve projects have been completed. Among recently completed projects is the construction of a water control structure at one of the outlets connecting Salt Bayou, Texas with the Gulf Intracoastal Waterway. This modification will aid in managing salinity levels in a 60,000-acre freshwater marsh complex. As more projects have been completed and more sponsors have become aware of the program's potential, both the number and the size of the projects being studied have increased. The Section 1135 program has matured beyond the developmental stage and is clearly meeting national needs. This program demonstrates that the Corps can develop innovative, cost effective, and technically sound solutions to a variety of environmental problems, while continuing to provide flood damage reduction and navigation services to the Nation.

Section 204 Beneficial Uses of Dredged Material

The fiscal year 1997 budget includes $4 million for the program of Beneficial Uses of Dredged Material under Section 204 of WRDA 92. This valuable program benefits the environment, while making good use of clean material dredged from the Nation's navigation projects.

Poplar Island

The fiscal year 1997 budget includes $22 million for the Poplar Island environmental restoration and dredged material disposal project, which was developed under the authority of Section 204. The Civil Works legislative package will propose authorization to exempt funding for Poplar Island from the annual funding limitation on the Section 204 program. We hope to initiate construction of Poplar Island during fiscal year 1996, either through a reprogramming, if sufficient funds become available, or through an advance of funds from the State of Maryland, of which the Federal share would be reimbursed.

Montgomery Point Lock and Dam

The budget includes $5.9 million for the Montgomery Point Lock and Dam on the McClellan-Kerr Arkansas River Navigation System to complete the contract for utilities and an access road that will be awarded in fiscal year 1996, pursuant to provisions of the appropriations act, and to continue engineering and design of the project. In accordance with the Administration's established position, we propose to submit statutory language that would derive 50 percent of the funds from the Inland Waterways Trust Fund. We would defer further construction of the project until the traffic on the waterway indicates greater need for the project, but we believe it is important to establish the precedent now of relying on the Inland Waterways Trust Fund for half of the costs of this project.

Southeast Louisiana

The fiscal year 1996 appropriations act provided $2 million for the Southeast Louisiana Project in the New Orleans Area. The Corps is using these funds to prepare a report and to initiate design and construction of measures to address serious area flooding problems. We propose to provide $10 million in fiscal year 1997 to continue these activities, as authorized last year.

CORPS OF ENGINEERS RESTRUCTURING

Finally, I would like to bring the Subcommittee up to date on Corps restructuring efforts. Early in 1994, the Army began a process to examine four aspects of the Corps Civil Works program: roles, missions, business processes, and infrastructure. In May 1994, the Army and the Corps initiated a review of the roles of the various levels of the organization and developed a roles matrix that was approved by the Secretary of the Army in September 1994. Efforts to develop organizations structures to implement the roles matrix began shortly thereafter. Both the Assistant Secretary's office and the Corps Headquarters were streamlined. Operational and technical review functions were moved out of the Corps Headquarters.

A new streamlined division organizational structure was developed which downsized divisions by over 20 percent. Division offices now concentrate on four functions: command and control, regional interface, program management and quality assurance. In keeping with these new roles, division staffs have been reduced in size to an average of 100 full time equivalent workyears. Technical review is now performed at the district level, and all policy review is now performed at the Washington level. Many other business process changes have been implemented to streamline work flow and provide front-line officers with increased authority.

Draft guidelines for district office restructuring, consistent with the new roles matrix, were distributed for review in the fall of 1995. These draft guidelines emphasize restructuring to achieve the primary goals of maintaining Corps technical competence and enhancing efficiency. Following consideration of the many comments received from project sponsors, interest groups and Corps employees, revised guidelines were sent to Secretary West, but have not yet been approved. Under the revised guidelines, primary authority would be delegated to the division commanders to restructure their subordinate districts in order to achieve efficiencies, while maintaining technical and engineering capability in each current district office.

Also in 1995, acting on the second element of the restructuring process, the Army and the Corps reviewed the Civil Works missions to develop options concerning which missions should be retained, reduced in scope, or transferred to other agencies or to the private sector.

The third element of the restructuring process is an examination of the Corps' business processes. The process of reviewing project documents was streamlined to eliminate duplication of effort and to focus the districts on technical review and the Washington level on policy review. These restructuring efforts are resulting in considerable saving of time in presenting project documents to the Administration and Congress for decisions. The Corps made similar improvement in the processing of small projects under the Continuing Authorities Program, in the handling of permits in the Regulatory Program, and in operation and maintenance activities.

The fourth element of the restructuring process is directed at reducing the costs associated with the Corps infrastructure. Under this phase of restructuring, one example of the potential efficiencies the Corps examined is the housing of its districts and divisions where they are co-located in the same city. In two cities, the Corps is in the process of co-locating district and division offices in the same building to reduce rent and utility costs.

The Fiscal Year 1996 Energy and Water Development Appropriations Act stipulated that the Secretary was to develop a plan to reduce the number of its division offices to a total of six to eight, without closing or changing the Civil Works functions of any district offices. At the time this law was enacted, the Corps of Engineers had 13 division headquarters offices. Since that time, two of those division offices, at Huntsville, Alabama and Winchester, Virginia, were redesignated as the Army Engineer and Support Center, Huntsville, and the Army Engineers Transatlantic Programs Center, respectively. Neither of these locations has Civil Works program responsibilities.

Earlier this month, the Chief of Engineers and I released a draft plan, which was provided to this Subcommittee. If the Secretary approves this plan, the number of Corps division offices would be reduced to a total of eight, and each new division would have at least four subordinate districts, as required by the 1996 Act. The recommended plan will be sent to the Secretary of the Army for approval shortly. In accordance with the provisions of the 1996 Act, after approval by the Secretary, the Corps would begin implementing the plan by August 15 of this year.

CONCLUSION

In conclusion, I would emphasize my commitment to work with this Subcommittee, others in Congress, the broader array of interests within the Administration, and the non-Federal partners of Civil Works projects to develop new policies and priorities to ensure that the Army Civil Works program in the Corps of Engineers continues to serve the vital interests of the Nation by providing efficient, priority investments in public infrastructure. Moreover, this must be achieved in a way that supports and contributes to the President's commitment to balance the Federal budget. Managing the Civil Works program during the coming years of severe funding constraints will be a tremendous challenge requiring the cooperation of all interests. I ask for your support as we move forward to meet these challenges.

Thank you, Mr. Chairman, Members of the Subcommittee. This concludes my statement.

Table A

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
FY 97 BUDGET

FUNDING
(Dollars in Thousands)

ACCOUNT	SOURCE										
	FEDERAL FUND							NONFEDERAL FUNDS a/			TOTAL
	TRUST			SPECIAL	GENERAL	TRANSFER	TOTAL	RIVERS AND HARBORS CONTRIBUTED			
	INLAND WATERWYS	HARBOR MAINTNNC	OIL SPILL LIABILITY	RECREATN USE FEES				REQUIRED	ANCILLARY	TOTAL	
1. USACE APPROPRIATION											
GENERAL INVESTIGATIONS	-	-	-	-	142,500		142,500	20,000	2,000	22,000	164,500
CONSTRUCTION, GENERAL	86,000	22,000	-	-	806,000		914,000	70,000	12,000	82,000	996,000
OPERATION AND MAINTENANCE, GENERAL	0	528,000	-	20,000 b/	1,108,000		1,663,000	1,000	7,000	8,000	1,671,000
REGULATORY PROGRAM	-	-	-	-	112,000		112,000	0	0	0	112,000
F.C., MISSISSIPPI RIVER & TRIB'S	-	-	-	-	292,500		292,500	13,000	0	13,000	305,500
GENERAL EXPENSES	-	-	-	-	153,000		153,000	0	0	0	153,000
FLOOD CONTROL & COASTAL EMERGENCIES	-	-	-	-	15,000		15,000	0	0	0	15,000
OIL SPILL RESEARCH	-	-	850 c/	-	0		850	0	0	0	850
PERMANENT APPROPRIATIONS	-	-	-	-	13,000		13,000	0	0	0	13,000
ALL	86,000	550,000	850	20,000	2,640,000		3,305,850	104,000	21,000	125,000	3,430,850
2. COASTAL WETLANDS RESTORATION TRUST						44,000 d	44,000	11,000	0	11,000	55,000
3. ALL							3,349,850	115,000	21,000	136,000	3,485,850
DOMESTIC DISCRETIONARY							(3,292,850)	0	0	0	(3,292,850)
MANDATORY (DIRECTED)							(57,000)	(115,000)	(21,000)	(136,000)	(193,000)

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a/ Cash contributions required by law for programmed work, and work beyond federal interest done at full nonfederal cost.

b/ Derived from the Special Recreation User Fees receipts.

c/ Share of appropriation from Oil Spill Liability Trust Fund for an approved, multi-agency R & D program.

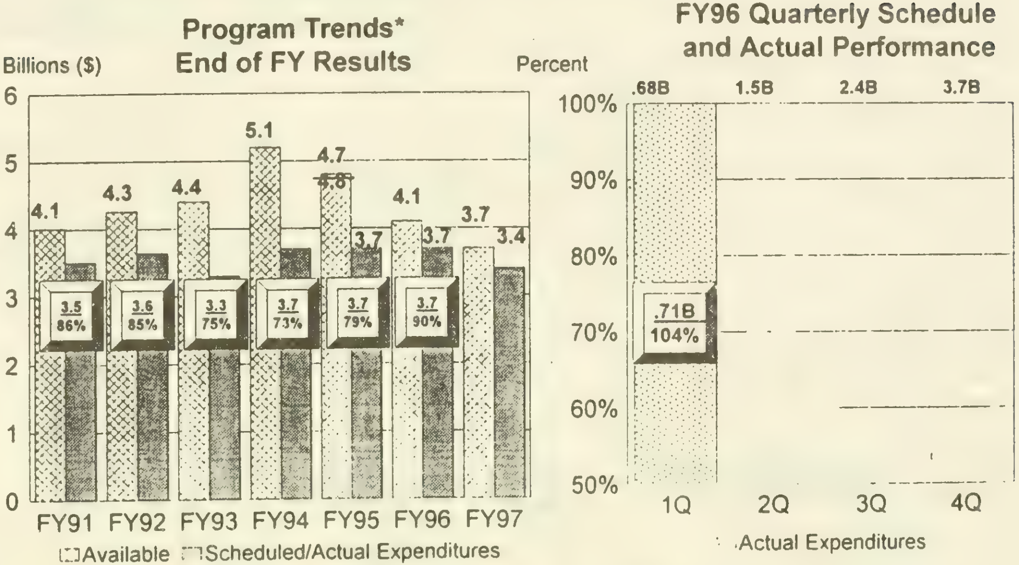
d/ Share of appropriation from U. S. Fish and Wildlife Service's Sport Fish Restoration Account (funded by Small Engine Fuel Tax receipts) for long-term conservation, protection, and restoration of coastal wetlands in Louisiana.

Table B

FY 96 Total Program

Funds Available, Scheduled, Expended

(New Budget Authority and Carryover)



Program Trends*
End of FY Results

FY96 Quarterly Schedule and Actual Performance

* Includes Coastal Louisiana Wetlands Trust Fund

4.7 ~~4.8~~ FY 95 - Total Rescission of $81 5 Million

Goal: Expend 96% ($3,553M) of the scheduled amount ($3,702M).

TABLE C
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
FY 1997 NEW CONSTRUCTION WORK

Project Name	FY 1997 Budget Request	Total Project Cost	Federal Cost	Non-Federal Cost
New Construction Starts				
Rio Grande de Loiza, PR	$ 2,540,000	$178,100,000	$ 89,050,000	$ 89,050,000
Wood River, Grand Isle, NE	$ 1,000,000	$ 11,800,000	$ 5,900,000	$ 5,900,000
Big Sioux River, Sioux Falls, SD	$ 2,200,000	$ 34,300,000	$ 17,150,000	$ 17,150,000
Duck Creek, Cinncinnati, OH	$ 466,000	$ 17,375,000	$ 8,688,000	$ 8,687,000
Pond Creek, Jefferson County, KY	$ 3,089,000	$ 16,810,000	$ 8,471,000	$ 8,339,000
Arecibo River, PR	$ 350,000	$ 23,400,000	$ 11,700,000	$ 11,700,000
San Lorenzo, CA	$ 200,000	$ 17,800,000	$ 9,030,000	$ 8,770,000
Saw Mill Run, Pittsburgh, PA	$ 500,000	$ 14,100,000	$ 7,050,000	$ 7,050,000
Chicago Shoreline, IL	$ 1,300,000	$ 12,400,000	$ 8,100,000	$ 4,300,000
Kake Harbor, AK	$ 4,000,000	$ 11,240,000	$ 10,116,000	$ 1,124,000
Helena and Vicinity, AR (MR&T)	$ 150,000	$ 11,400,000	$ 5,700,000	$ 5,700,000
Major Rehabilitation				
Garrison Dam and Power Plant, ND	$ 337,000	$ 36,100,000	$ 36,100,000	$ 0
Hodges Village Dam, MA	$ 5,200,000	$ 17,100,000	$ 17,100,000	$ 0
The Dalles Powerhouse, OR & WA	$ 3,000,000	$ 86,000,000	$ 86,000,000	$ 0
Walter F. George Power Plant, AL & GA	$ 900,000	$ 27,400,000	$ 27,400,000	$ 0
Deficiency Correction				
Iao Stream, Maui, HI	$ 345,000	$ 16,150,000	$ 12,112,000	$ 4,038,000
Reconstruction				
Upper Sacramento Levee Reconstruction, CA	$ 300,000	$ 5,740,000	$ 2,890,000	$ 2,850,000
Totals	$25,877,000	$537,215,000	$362,557,000	$174,658,000

STATEMENT OF ARTHUR E. WILLIAMS

Senator DOMENICI. Thank you very much, Mr. Secretary.

Let me now welcome General Williams. General, we note that you will be completing 34 years of service, is that right?

General WILLIAMS. That is right, Mr. Chairman.

Senator DOMENICI. I do not know its entire scope, but I guess the generalization is that you have done just about everything there is to do within the Corps' Civil Works Program as a military officer, and now including Chief of Engineers. I want to congratulate you for your service. Clearly, it has been exemplary, and we are very proud to have you before us today. When is this going to come to an end for you?

General WILLIAMS. Sir, on the 6th of June of this year I will have a retirement ceremony. It has been a pleasure to serve.

Senator DOMENICI. June 6.

General WILLIAMS. Yes, sir.

Senator DOMENICI. Would you please share your testimony with us now.

General WILLIAMS. Thank you, Mr. Chairman. I certainly appreciate the opportunity to testify before you today on our Civil Works Program for fiscal year 1997. As you mentioned, due to my retirement in June this is going to be my last of several years of testifying before your committee. It has certainly been an honor to appear before Congress, and I appreciate the support you and others have provided to our Nation.

Senator, with your permission I propose to summarize my prepared statement and submit the complete one for the record.

Senator DOMENICI. It will be made part of the record.

General WILLIAMS. My summarized statement briefly covers two topics: First, I would like to cover some significant accomplishments of the Civil Works Program; and second, a little bit about the program execution and the outlook.

ACCOMPLISHMENTS

So let me start with my first topic and highlight a few significant accomplishments in our Civil Works Program over the last few years. Secretary Lancaster set forth our efforts at restructuring the Civil Works Program. These efforts have brought about significant role changes throughout the organization, but most importantly in our headquarters here in Washington and our division offices in the field.

In addition to the changes outlined by the Secretary, we have either eliminated or transferred operating functions to our subordinate activities. We terminated the financing of headquarters activities with project funds. Our headquarters is now completely focused on policy review and program management activities.

Our divisions out in the field now focus on the quality assurance for our planning and engineering functions in their districts, and districts now control the quality of their products, including the technical review of all their planning and engineering documents.

Additionally, we adopted a standardized structure for our division headquarters, which requires staffing of approximately 100, plus or minus, full-time equivalents. Full implementation of this structure in fiscal year 1996 will save approximately 140 full-time equivalents, which equates to an annual savings of approximately $8 million.

The Secretary also briefly described the process of restructuring our district offices and a few of those highlights in our revised plan are that: no district offices in the United States will be closed; organization changes will be linked to the workload; technical expertise in engineering, construction, planning, operations, and project management will be maintained in each district; and greater use will be made of private industry, or outsourcing, as some people refer to it.

In response to ongoing initiatives in the administration and the Corps' enhanced focus on customer service, we surveyed our customers this year to gain information about their expectations and views of our service. We were pleased with the overall customer rating of excellent and especially the high ratings in the categories of delivering quality products and treating our customers as team members. We plan to use this information to further improve our customer service and help in streamlining our processes.

As you know, the Corps continues to respond to the natural and manmade disasters throughout the Nation, and I am proud to have served as the Chief of Engineers during the period when the Corps has responded to natural disasters such as Hurricanes Andrew and Iniki in 1992, the Midwest record floods of 1993, the Northridge Earthquake of 1994, the southeast, Midwest, and California floods of 1995, plus Hurricanes Opal and Marilyn, and more recently the northeast and northwest floods.

In addition to the natural disasters, the Corps was also called upon to respond to the tragic bombings of the World Trade Center in New York City and the Federal Building in Oklahoma City. We also provided a variety of assistance in humanitarian and peacekeeping missions in such places as Somalia, Rwanda, Haiti, and Bosnia. So I am extremely proud of the responsiveness of the Corps to these various missions and I am confident that the dedication and the vigilance of the Corps team members to respond to emergencies such as those will continue.

Another important part of our program is helping other Federal agencies on a cost-reimbursable basis. By doing this work, we maintain and enhance our capabilities for execution of our Civil Works and military program missions. The Office of Management and Budget views our support for other program as a business-like franchise that results in savings to the Government as a whole.

Beginning in fiscal year 1997, OMB will set aside an additional allocation of up to 500 full-time equivalents to enable an even greater Corps response to other Federal agencies' requests.

PROGRAM EXECUTION

My second and final topic is a little bit on the program execution and the outlook. As Secretary Lancaster highlighted, during fiscal year 1995 we improved significantly our expenditure performance of scheduled work. The districts established realistic schedules, and they met them. My complete statement provides the details. In fiscal year 1996 we have again focused attention on establishing realistic schedules, and I fully expect our districts to perform as well as they did in 1995.

However, looking to the future, I do have some concerns. The fiscal year 1997 budget request and our projected carryover from fiscal year 1996 indicate a declining program. The near out-year ceilings in the President's budget continue this trend.

For studies and projects scheduled to be completed after September 1997, our justification sheets show completion dates as being determined. The reason for this is that the out-year ceilings were unavailable to our divisions and our districts for use in developing the project schedules in time for this hearing. However, now that the ceilings are available, completion dates for the budgeted projects are being developed.

In conclusion, I believe our Civil Works Program continues to benefit the Nation, as evidenced by our investment analysis and our customer feedback surveys. And although we have a number of performance improvement challenges facing us, I am confident in our ability to respond.

PREPARED STATEMENT

We realize the future will continue to be filled with changes and challenges, but you can rest assured that we are going to do our best to be responsive to those challenges.

Thank you, Mr. Chairman. This concludes my statement.

[The statement follows:]

Prepared Statement of Arthur E. Williams

INTRODUCTION

Mr. Chairman and members of the subcommittee: I appreciate the opportunity to testify before you, with the new Assistant Secretary of the Army for Civil Works, the Honorable H. Martin Lancaster, on the President's fiscal year 1997 Budget for Army's Civil Works Program. Due to my retirement this summer, this will be my last of several appearances before your committee. It has been an honor to appear before Congress, and I appreciate the support you have provided to our Nation.

My statement covers these four topics: fiscal year 1997 Civil Works Program Budget, Corps of Engineers Financial Management System (CEFMS), Significant Accomplishments of the Civil Works Program, and Program Execution and Outlook.

FISCAL YEAR 1997 CIVIL WORKS PROGRAM BUDGET

OVERVIEW

The proposed fiscal year 1997 Civil Works direct program budget is $3.49 billion, exclusive of offsetting receipts. This includes $3.29 billion requested through the Fiscal Year 1997 Energy and Water Development Appropriations Act; $13 million in permanent appropriations; $44 million to be transferred from the Sport Fish Restoration Trust Fund into the Coastal Wetlands Restoration Trust Fund for Louisiana coastal restoration work; and $136 million in nonfederal financing from Rivers and Harbors Contributed Funds.

As shown in the table, the budget is slightly larger than the one for fiscal year 1996. It includes funding for 3 new reconnaissance studies, 1 new preconstruction engineering and design effort, 11 new construction projects, 4 major rehabilitation projects, 1 reconstruction project, and 1 deficiency correction project. It also provides for follow-on funding of nearly all studies and projects underway, including a large number that received initial funding in fiscal year 1996.

Of the $3.49 billion budget, $723 million, or 21 percent, would come from existing user fees and trust funds, including ad valorem freight tax, fuel taxes, and recreation facilities user fees. The budget proposes eliminating fees for individual landowners and increasing permit fees for commercial activities of the Regulatory Program to help cover the costs of evaluating applications and issuing permits. We estimate that these increases would generate $7 million in fiscal year 1997. New funding from sources other than general revenue of the Federal Treasury, including cost-sharing contributions, amount to 25 percent of new funding for the direct program.

REIMBURSED SUPPORT FOR OTHERS

A part of the Civil Works Program is helping other agencies with timely, cost-effective implementation of their programs. By doing this work, we maintain and enhance our capabilities for execution of our Civil Works and Military program missions. The Office of Management and Budget (OMB) views this program as a business-like franchise that results in savings to the government as a whole. Beginning in fiscal year 1997, OMB will set aside an additional allocation of up to 500 full-time equivalents (FTE's), to the extent that work is available and is consistent with enhancing execution of the Corps' missions, to enable even greater response to customers' requests.

Overall we provide reimbursed support for about 60 other federal agencies and governments through work in environmental, engineering, and construction management. Total reimbursement funding for such work in fiscal year 1997 is projected to exceed $700 million. (About half of this is for environmental work.) The largest share—nearly $250 million—is expected from the Environmental Protection Agency for cleanup of wastes at numerous sites under its Superfund Program.

STAFFING

Civil Works Program staffing for fiscal year 1997 is 27,201 FTE's, reflecting a reduction of 354 FTE's from the fiscal year 1996 total. This includes 25,934 for the direct program and 1,267 FTE's for reimbursed support for others. Total staffing is allocated 89 percent to districts, 4 percent to laboratories and other separate field operating agencies, 5 percent to division offices, and 2 percent to headquarters. Under restructuring, the headquarters share will remain essentially unchanged while district and separate field operating agency shares will grow from reallocation of division office savings.

CORPS OF ENGINEERS FINANCIAL MANAGEMENT SYSTEM

When I last testified before you, we were about to begin crucial field testing of our Corps of Engineers Financial Management System (CEFMS) in our Fort Worth District, where all system functions would be used for the first time, and at our headquarters, where any defects would be visible at the highest level. The testing has been completed, all critical deficiencies have been corrected, and I anticipate that the Department of the Army Automated Information Systems Review Council (MAISRC) will approve Corps-wide deployment of the system in the near future.

In a recent study, the Department of the Treasury compared the capability of CEFMS to support financial management requirements with capabilities of commercially available accounting systems used by other federal agencies, and found that CEFMS capability was substantially superior, without a comparable difference in cost.

Our deployment schedule is ambitious, calling for completion of installation at the last site during the first quarter of fiscal year 1998. We will keep you informed of our progress through the quarterly progress reports.

SIGNIFICANT ACCOMPLISHMENTS OF THE CIVIL WORKS PROGRAM

INTRODUCTION

This part of my testimony summarizes significant accomplishments in the Civil Works program over the past few years.

RESTRUCTURING OF CIVIL WORKS PROGRAM

Roles and Missions

As Secretary Lancaster described in his statement, significant efforts have been made to restructure the Civil Works Program. We have continued efforts to streamline executive functions in compliance with the Administration's National Performance Review and Reinventing Government initiatives. Study teams were established to develop organizational guidelines to achieve downsizing of the headquarters, division, and district offices. Significant role changes, approved by the Secretary of the Army, included elimination of technical review at headquarters and division offices, policy review at divisions offices, and operating functions at headquarters and division offices.

Quality Assurance/Quality Control

The definitions of roles and missions approved by the Secretary of the Army have led to important changes in how we produce the high quality projects for which the Corps of Engineers has been so justly credited. Headquarters now focuses on policy review to ensure consistency of all Civil Works decision documents with law and executive branch policy. Divisions now focus on quality assurance, and, to this end, each has implemented a quality assurance/quality control (QA/QC) plan for planning and engineering activities of its districts. And, districts now control the quality of their products, including technical review of all planning and engineering documents. The assignment of responsibility for quality control, including independent technical review to districts, represents a major management change for the Corps. In the past, both divisions and the Headquarters had technical review responsibilities. Because this new business process represents a fundamental change in organizational culture, we have focused on timely and effective implementation. Each division has developed and implemented a quality assurance plan. Also, a task force of Headquarters and division personnel has been created to evaluate initial implementation of the new process, identify adjustments needed, and develop a common understanding of where we are headed.

Implementation of our new roles and missions has led to significant reduction in review time for our projects and reports. Formerly, successive reviews at districts, divisions, headquarters, the former Washington Level Review Center, Army, and OMB made the process very lengthy. Our nonfederal project partners and Congress were critical of this. In response, we reduced the number of successive reviews by more than half, while preserving product quality and project integrity. Under our new "one stop" process, technical review is done only at districts, where most of our technical expertise resides, while policy compliance review is done only at Corps headquarters (we abolished the Washington Level Review Center). By Executive Order, OMB reviews projects to check on quality assurance, and to ensure adherence to Administration policy.

Restructuring

About five years ago, senior managers of our Operation and Maintenance (O&M) program undertook development of a plan to improve the cost efficiency and effectiveness of the O&M program. This initiative was undertaken so that we would be in a better position to comply with resource constraints while continuing to serve our customers. Some of the more significant provisions of the plan were that: the agency budget process be made more rigorous and streamlined, one person be made fully accountable for managing each project, the number of employees per supervisor be doubled, the number of management positions be reduced by 175, engineering regulations be updated, consolidated, and reduced in number, and a results-oriented performance measurement system be instituted.

We have implemented all of these provisions and are realizing improved cost efficiency and effectiveness from all but the last, which must evolve over several years.

Last July the Acting Assistant Secretary of the Army (Civil Works) and I began the process of restructuring our district offices. Our focus was to find a method for reducing costs, providing quality products to our customers, while complying with projected manpower and budget constraints. Instead of developing and imposing a Washington-designed centralized plan, we developed a set of principles, guidelines, and responsibilities that will allow division commanders to decide, within this guidance, how best to organize their districts to meet the regional needs of their customers. The first draft of this guidance was widely distributed for comment to our employees, customers, partners, and members of Congress, and elicited over 1,400 pages of comments. In view of these comments, we revised the guidance and submitted the result to the office of the Secretary of the Army for approval. Highlights of the guidance are that: no district offices in the United States be closed; organization changes be linked to workload; technical expertise in engineering, construction, planning, operations, and project management be maintained in each district; greater use be made of private industry (outsourcing); small activities be consolidated at one location for greater efficiency; and division commanders have authority and responsibility to restructure their districts.

Additionally, we adopted a standardized structure for divisions, requiring staffing of approximately 100 FTE's, to provide Executive Direction and Management for both civil and military missions in subordinate districts. Full implementation of this structure in fiscal year 1996 will save approximately 140 FTE's, which equates to an annual savings of approximately $8 million.

Partnering

The Alternative Dispute Resolution (ADR)/Partnering program is a corporate success story which has grown into a cultural phenomenon as we share methods and practices of a new way of doing business. ADR has grown from roots in construction contract dispute resolution through a partnering process in which goals are established in common interest to produce win-win outcomes. Partnering is a way of doing business based on trust, openness, teamwork, and risk-sharing by all stakeholders in projects—customers and vendors alike. Its purpose is to minimize misunderstandings and claims, avoid costly litigation, and expedite production. The success of partnering has resulted in better administrative and cost control throughout the Corps.

In September 1995, the program was recognized in the annual report of the National Performance Review as having had a dramatic impact on construction and trade industries, the legal community, and citizens and governments throughout the United States. The program was also recognized by the Ford Foundation and Harvard's Kennedy School of Government. This year we are focusing on training, technical assistance, and design of ADR applications for the regulatory and hazardous/toxic waste programs.

Continuing Authorities Program

Under our Continuing Authorities Program (CAP), projects are accomplished expeditiously and result in a high level of customer satisfaction. Over the last two years, the program has been streamlined substantially, with our field offices now empowered to make most approval decisions. This has contributed to improved program execution. As an example, in the Section 14 program, projects approved under delegated authority have taken 20 percent less time to reach construction approval. However, it has increased pressure on limited funds. CAP projects continue to be an important segment of our total water resources infrastructure investment program.

Project Cooperation Agreements

One of the key milestones in cost-shared projects is execution of the Project Cooperation Agreement (PCA). Negotiation and processing of PCA's is complex and time-consuming and can affect a project's overall schedule. Since 1991, we have worked to make such negotiation and processing more predictable and efficient in two ways.

First, in consultation with nonfederal interests, the Army has developed new model PCA's that incorporate federal/nonfederal partnering concepts and address many of the recurring concerns of our nonfederal project sponsors. These include models for specifically authorized structural flood control projects and recreation features, and for continuing authorities projects. Soon we will have a new model for harbor projects.

Second, division and district commanders have been delegated authority to sign, without Washington-level review, PCA's that conform to the models. We believe that these steps have fostered partnership, expedited negotiations, and, in cases of conforming PCA's, saved at least 60 days.

Changes in Corps Headquarters

For most projects, we have consolidated policy review at our Washington headquarters and either transferred technical review and operating functions to subordinate activities, or eliminated them. In programs for which we have delegated project approval authority to divisions, policy compliance review is also accomplished at the division level. We terminated the financing of headquarters activities (centralized activities) with project funds. These activities were made line items in the General Expenses budget; converted to fee for service operations, in limited cases; or, abolished. Now, only General Expenses funds are being used to support headquarters activities and executive direction and management activities at division offices. Headquarters is now completely focused on program management activities. In the interest of better financial management and reporting, as mentioned above, we converted the headquarters to the new CEFMS. Efforts are ongoing to establish the USACE Finance Center—the Corps' central financial center—in Memphis, TN, and to transfer human resources management functions to the Army Human Resources Regionalization effort.

Headquarters Responsiveness to Field Offices

One of our several initiatives to streamline business processes involved simplifying policy review of project decision documents at the Washington level. (These documents include reconnaissance, feasibility, design, and real estate reports, and project cooperation agreements.) We are beginning to reap the fruits of that initiative. In fiscal year 1994, our composite average processing period for such documents was 122 days. We were able to cut 47 days from this in fiscal year 1995—a 38 percent reduction. The highlight of this achievement was in cutting the processing period for PCA's (in which our partnering relations and negotiations with project sponsors are most involved) to an average of 54 days—down 35 days from our fiscal year 1994 average of 89 days—and well within our goal of 60 days. This was done despite a 60 percent increase in the number of PCA's submitted for policy clearance. While it is too early to establish trends in processing of all types of project decision documents in fiscal year 1996, based on results with the few such documents received to date, we appear to be maintaining our efficiency gains. We continue to refine our efforts to look only at documents of relevance to headquarters. Our current efforts are focused on a few troublesome types of documents for which we have yet to reduce processing times. In light of our ongoing downsizing and restructuring, these accomplishments are significant—a credit to our dedicated and responsive workforce.

In response to ongoing initiatives in the Administration and the Corps' own focus on customer service, we surveyed our customers this year to gather information about their expectations and views of our service. We were pleased with our overall customer rating of "excellent" and especially our high ratings in the categories of "delivering quality products" and "treating customers as team members." We will use this information to further improve customer service and help in streamlining our process.

Response to Surveys and Investigations Reports

As I testified last year, we took actions on the recommendations of the House Appropriations Committee Surveys and Investigations (S&I) staff, based on its examination of several areas of our financial and program management, including the Civil Revolving Fund and the Information Systems Modernization Program. Recently, our internal audit staff completed review of these actions and determined that effective corrective actions have been completed or are underway in all areas. We will continue to emphasize the importance of full implementation of all actions recommended.

EMERGENCY RESPONSES

The Corps continues to provide leadership in response to natural disasters throughout the Nation. Since receiving its emergency mission in 1941, the Corps has developed and sustained an engineering organization capable of responding to both natural and man-made disasters—hurricanes, floods, earthquakes, and any other disasters.

I am proud to have served as Chief of Engineers while the Corps has responded so well to natural disasters, such as Hurricanes Andrew and Iniki in 1992, the Midwest Floods of 1993, the Northridge Earthquake in 1994, the Southeast, Midwest, and California Floods of 1995, plus Hurricanes Opal and Marilyn, and, more recently, the Northeast and Northwest Floods. We are very proud of the performance of Corps flood damage reduction projects during these recent events.

In the Northeast, an already heavy snow pack was topped off with an additional two feet of snow from the "Blizzard of 96"; by mid-January, two to six feet of snow covered the area from North Carolina and Tennessee to the Canadian border. From January 19–22, the snow-covered area was subjected to unseasonably warm temperatures and widespread heavy rainfall, combining to produce considerable flooding and widespread destruction. Skillful operation of reservoirs by corps project managers reduced flood crests by as much as ten feet on many rivers, while Corps-constructed levees protected thousands of homes and businesses from inundation. Preliminary estimates of the flood damages prevented by the operation of Corps projects total $4.4 billion, with about 70 percent of the damages prevented in Pennsylvania.

In the Northwest, a similar scenario unfolded early last month, when a series of severe storms drenched Idaho, Oregon, and Washington. Some tributaries collected 25–30 inches of combined snowmelt and rain in just four days. By coordinating the operation of multiple reservoir projects, project operators were able to significantly reduce flood crests and reduce flood damages by about $3.2 billion. Of particular note is the successful operation of the reservoir and levee system on the Willamette River, which reduced flood crests in Portland by at least seven feet and saved the city of Portland from major flooding.

It has been a winter when floods once again caused millions of dollars in economic damages and tragic loss of life. The situation would have been even worse had the Corps not been there.

In addition to natural disasters, the Corps was also called upon to respond to the tragic bombings of the World Trade Center and Federal Building in Oklahoma City. We also provided a variety of assistance in humanitarian and peace-keeping missions in Somalia, Rwanda, Haiti, and Bosnia. I'm extremely proud of the responsiveness of the Corps of Engineers to these various missions, and confident that the dedication and vigilance of Corps team members to respond to emergencies will continue.

PROGRAM EXECUTION AND OUTLOOK

INTRODUCTION

As noted by Secretary Lancaster, Program Execution is of utmost importance. We provide support to the Assistant Secretary in preparing for the Quarterly Army Performance Review. We made program execution a priority issue throughout the Corps for fiscal year 1995 and our divisions and districts responded well. I have directed each division commander to discuss his division's performance in execution of its programs in his testimony this year. We are continuing an emphasis of meeting schedules in fiscal year 1996.

GENERAL INVESTIGATIONS

Scheduled expenditure for the General Investigations program in fiscal year 1995 was $222 million. We spent $201 million of this for an expenditure performance rate of 91 percent. This was 12 percent better than in fiscal year 1994.

Total available for expenditure for the General Investigations program in fiscal year 1996 is about $20 million less than spent in fiscal year 1995. Our goal is to expend 95 percent of the amount scheduled for expenditure, and, for the first quarter, we have exceeded that goal. Nevertheless, the shortage in available funds will not allow all studies and projects to remain on schedule. There will be delays and elimination of some research programs. This will result in lost opportunity for cost and time savings at Corps projects throughout the Nation.

We are restructuring our research program in concert with changes in the overall Civil Works Program to comply with the Administration's National Performance Review and Reinventing Government initiatives. Additionally, we are incorporating into our research and development program lessons learned about private sector research investment processes and down-sizing strategies.

The President's fiscal year 1997 budget includes $142.5 million for the General Investigations program. The outlook for program workload is healthy. We will continue to work diligently at enhancing our performance during these times of limited resources.

Construction, General

In fiscal year 1995, $1.74 billion was available for expenditure in the Construction, General, account. Of this, $352 million was programmed as unobligated carryover into fiscal year 1996. In line with historic expenditure rates for the account, our goal was to expend $1.11 billion in fiscal year 1995. We were able to better this amount by $50 million, accomplishing construction valued at $1.16 billion for the year.

Total carryover into fiscal year 1996 in the Construction, General, account was approximately $583 million. This, plus new appropriations totaling $805 million, less transfers of $22 million to the Flood Control and Coastal Emergencies (FC&CE) account and $1 million to the Bureau of Indian Affairs, yields $1.36 billion available for expenditure during the year. At the end of the first quarter, we were slightly ahead of schedule to expend $1.12 billion in fiscal year 1996, and we expect to meet or exceed this target again this year. Unscheduled funds total $242 million. This is significantly less than our historical average carryover, and includes approximately $154 million earmarked in law for specific activities or projects which cannot be accomplished this year.

The President's fiscal year 1997 budget includes $914 million for the Construction, General, account. This amount, plus the anticipated carryover of $242 million from fiscal year 1996, would provide $1.16 billion for expenditure in fiscal year 1997. We expect to expend about $1 billion, and to carry over about $160 million unexpended into fiscal year 1998. Part of this carryover would be used to finish projects funded for completion; the rest represents the balance of funding for Congressional adds not completed in the year funded.

Funding at this level will necessitate stretching our construction schedules and extending project completion dates.

For projects scheduled to complete after September 1997, our justifications sheets show "Being Determined" in lieu of completion dates because outyear ceilings, which govern them, were unavailable to divisions and districts for use in developing project schedules in time for this hearing. Now that ceilings are available, completion dates for budgeted projects are being developed.

OPERATION AND MAINTENANCE, GENERAL

In fiscal year 1995, the expenditure rate for the O&M, General, account was 94.5 percent the best since fiscal year 1989, when the record of 97 percent was set. The fiscal year 1995 obligation rate was 97 percent of funds available for obligation. This performance reflects outstanding management of resources by headquarters and field staff.

Fiscal year 1996 performance is off to a good start and should equal or exceed that for fiscal year 1995. In addition to our normal workload, we are challenged to keep projects adversely impacted by recent flooding in the Northeast and Northwest and Hurricane Opal fully operational. Also, the O&M account balance has been reduced by $28.5 million transferred to the FC&CE account.

Fiscal year 1997 performance of the Operation and Maintenance, General, Program is expected to be on par with that of fiscal year 1995. We are working to constrain the cost growth of this program in order to maintain a balance in the Civil Works Program. This will have a growing effect over time.

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES

In fiscal year 1995, we expended 98 percent of funds available for expenditure in the Flood Control, Mississippi River and Tributaries Project account. Of the unexpended funds, $1 million was left unobligated with an additional $5 million obligated but unexpended. The unobligated carryover was less than 1 percent of new budget authority for fiscal year 1995.

We anticipate excellent financial performance on the Flood Control, Mississippi River and Tributaries Project for fiscal year 1996. However, we also anticipate difficulty in accomplishing some work planned for fiscal year 1996, especially our Channel Improvement program, due to an appropriation of $11 million less than requested, and transfer of $5 million to the FC&CE account.

The President's fiscal year 1997 Budget request for the Flood Control, Mississippi River and Tributaries Project continues the recent downward trend of funding for this program. We anticipate completion of our Yazoo Basin Demonstration Erosion Control work in Mississippi and transferring implementation of any remaining work to the local sponsor.

BALANCING NEW INVESTMENTS AND O&M

During my watch as Chief of Engineers, we have been able to make sound new investments in water resources development, as well as provide a higher level of service from our existing Civil Works projects. One of the challenges that the Corps of Engineers faces is the degree to which it can continue providing these services to the Nation within the context of a balanced budget.

Future funding constraints will impact both programs. New construction may need to be stretched out over a longer period of time. Steps also have to be taken in the O&M arena to contain future growth as much as possible. We have taken the first step in this endeavor by embarking on a five-year cost reduction strategy to accommodate declining resources while still providing our customers with a quality level of service. We will continue to evaluate opportunities to use technology leveraging to reduce cost and save time in this program.

I have no doubt that the Corps of Engineers will meet this and other future challenges with the same excellent results of its past achievements.

GOVERNMENT PERFORMANCE AND RESULTS ACT OF 1993

The initiatives, discussed earlier, to improve the efficiencies and effectiveness of our business processes and the challenges of balancing scarce budget resources between new investments and O&M ultimately benefit or impact the delivery of our products and services to the nation. We are using the landmark Government Performance and Results Act of 1993 (GPRA) as our catalyst and challenge to reflect how this all comes together in delivering program results. I have discussed how our process improvements have translated into more efficient processes, e. g., better partnership relations, higher rates of expenditures, shortened review times, and more responsive decision processes. We, however, do not have measures in place to demonstrate how this translates into improved program results. We know that different funding levels will influence when program results can become available and what level of services can be offered. We have measures at the project level to demonstrate such impacts, but not at the program level. As noted by Secretary Lancaster, we have made progress in complying with the GPRA. We have efforts underway to develop results-oriented program performance measures that will allow us to demonstrate the contributions and impacts of internal process improvements and levels of funding. Such information will be invaluable to managers, the Administration, the Congress, and the American people in relating what they are actually receiving in products and services for the revenues entrusted to us.

CONCLUSION

Our Civil Works Program continues to benefit the Nation as evidenced by our investment analyses and customer feedback surveys. We, however, have a number of performance improvement challenges facing us; and I am confident in our ability to respond. We have a long history of continually seeking improvement in the delivery of our programs. Our most significant recent effort in adjusting the Corps' business culture to achieve improved performance and greater customer satisfaction has been the institution of project management. The need was apparent when we entered the era of cost sharing on the projects we build. The fruits of that cultural adjustment are beginning to emerge in terms of greatly improved partnership relationships with state and local governments.

We are now devoting our energies to empower our workforce at the lowest possible level and improve the efficiencies of our decision processes. This will improve our performance in delivering projects authorized by Congress and simultaneously enable us to be responsive to current initiatives to downsize government.

Finally, the Energy and Water Development Appropriations Act, 1996, although timely for us, presents us with a challenge to accomplish all the work awaiting us in the current year. Moreover, as the President's Budget for fiscal year 1997 and beyond shows, the Nation must continue to cut discretionary spending in order to balance the budget as planned. In view of this, we must find even more ways to reduce our costs, and shift more of those remaining to direct beneficiaries of our services. Meanwhile, our program will continue to change, and we will do our very best to analyze, plan, and execute it.

Thank you Mr. Chairman and Members of the Committee. This concludes my statement.

CIVIL WORKS PROGRAM—FUNDING SUMMARY

[In millions of dollars]

Source/Account	Fiscal year		
	Acutal/Assumed		Requested 1997
	1995	1996	
Discretionary:			
General investigations	170,568	121,767	142,500
Construction, general:			
General fund	863,991	729,573	806,000
Harbor Maintenance Trust Fund			22,000
Inland Waterway Trust Fund	54,509	53,000	86,000
Total	918,500	782,573	914,000
Operation and maintenance, general:			
General fund	1,090,080	1,148,197	1,106,000
Harbor Maintenance Trust Fund	519,196	500,000	528,000
Special recreation user fees fund	33,000	27,000	29,000
Total	1,642,276	1,675,197	1,663,000
Flood Control, Mississippi River and tributaries	327,252	302,885	292,500
Regulatory program:			
General fund	100,733	101,000	105,000
Proposed permit fees			7,000

CIVIL WORKS PROGRAM—FUNDING SUMMARY—Continued

[In millions of dollars]

Source/Account	Fiscal year		
	Acutal/Assumed		Requested 1997
	1995	1996	
Total	100,733	101,000	112,000
General expenses	152,250	151,500	153,000
Flood control and coastal emergencies	14,979	65,500	15,000
Oil Spill Liability Trust Fund	900	850	850
Total	3,327,458	3,201,272	3,292,850
Mandatory: Permanent appropriations	11,979	13,000	13,000
Total	3,339,437	3,214,272	3,305,850
Transfer: Coastal Wetlands Restoration Trust Fund	35,000	38,000	44,000
Contribution: Rivers and harbors contributions	116,000	143,000	136,000
Total	3,490,437	3,395,272	3,485,850

NEW COST-SHARING POLICY

Senator DOMENICI. Thank you very much, General.

Do either of you, General Genega or Mr. Loew have a statement?

General GENEGA. No.

Mr. LOEW. No.

Senator DOMENICI. Then, let us talk a little bit about new starts and the cost-sharing policy, please.

Mr. LANCASTER. Yes, sir.

Senator DOMENICI. This 1997 budget proposes to initiate several new projects that we find are contingent upon receiving authorization and the budget, I believe, assumes new cost-sharing requirements. Why is the administration again proposing cost-sharing policy changes in the appropriation process, particularly in light of Congress' overwhelming rejection of significant changes in cost sharing last year? Why does the administration feel compelled to propose these changes, which really should be done as part of the authorizing process, not in the appropriations?

Mr. LANCASTER. Well, first of all, Mr. Chairman, those policy changes will be proposed as a part of the authorizing process in the administration's 1996 legislation, which will be submitted to the Hill soon. If those policy changes are accepted in the authorizing process, then, of course, those policies would need to be reflected in the appropriations process, and, therefore, they are included for that purpose in the appropriations process.

The reason for a change in cost share to 50 percent, or 50–50, is our recognition that, if the Corps of Engineers is to share in the burden of balancing the budget, that we will have fewer dollars to spend in the future than we have had in the past. But we have a continuing demand from communities all across the country to assist with the construction of projects.

We recognize that we have only a few options here. We either can fund fewer projects at old cost-sharing ratios; or we can share the wealth with more communities by changing the cost share ratio and expecting more of the beneficiaries or non-Federal sponsors in funding the projects which they seek. We decided that, because of the demand for additional projects; and because we felt it was important for us to bear part of the burden of balancing the budget, we should simply spread that over more communities by changing the cost share basis.

Senator DOMENICI. Do you know whether the administration has sent to the Congress this cost-sharing legislation, that is to the authorizing committees? Is that up here already?

Mr. LANCASTER. It is not, Mr. Chairman. It is now being worked through the process of approval.

Senator DOMENICI. Do you know in your proposals how the changes are going to apply to projects that are currently under construction or projects authorized to be constructed?

Mr. LANCASTER. The proposal would be that the new cost sharing would apply to all projects for which there is not yet a cost-sharing agreement in place, the PCA, the project cooperation agreement. So for projects that are underway and for which there is a PCA, the cost sharing would not change.

As to new projects for which there is not yet a PCA executed, the new policies would apply.

Senator DOMENICI. Why is it fair for a community which has been working with the Corps under existing policies and procedures for as many as 5 years under an expectation of a certain level of cost sharing, but they have not had the agreement signed, to all of a sudden get it changed?

Mr. LANCASTER. Mr. Chairman, we had to make a decision as to where to draw the line, and at this point, we believe that in order to have the maximum impact of the new cost share that we should do it at the PCA level. However, we will be happy to work with the Congress in determining the effective date of the new cost share if it should be approved.

NEW CONSTRUCTION STARTS

Senator DOMENICI. Now, I am interested in a possibility, I think I would probably say a probability, that authorizing legislation is not going to be enacted by the time the committee begins its markup process. So would the administration support the inclusion of these new unauthorized projects in the 1997 budget? What is going to happen to those if we do not get authorizing legislation?

Mr. LANCASTER. It would be our hope that they would be included in the appropriation measure subject to subsequent authorization.

Senator DOMENICI. So you would not support them if we do not put the new authorizing language into effect? You would not support them under the old law?

Mr. LANCASTER. Well, it would be impossible for us to support all of them.

Senator DOMENICI. I understand that.

Mr. LANCASTER. But if the funds were available to support them at the old cost-sharing levels, then, of course, these are projects which have been studied by the Corps, the process is now complete and ready for Congress to act on, and we, of course, would work with the Congress in making certain that these projects, which we believe are justified and do serve a Federal purpose, are doable.

Senator DOMENICI. Will the proposed new cost sharing and flood plain management requirements apply to the cost sharing on the continuing authorities programs as well?

Mr. LANCASTER. The continuing authorities?

Senator DOMENICI. Yes.

Mr. LANCASTER. We do not propose to change the continuing authorities program in any way, and have requested full funding in this year's budget request.

ACEQUIAS IRRIGATION SYSTEM, NM

Senator DOMENICI. Could I ask just two parochial questions, then I will move on to some others. I wanted to just share with you, General, how important the Acequias Program is to me in New Mexico. It has been going on for some time—we started a long time ago.

Mr. LANCASTER. It started even before you, Senator.

Senator DOMENICI. Oh, acequias has been there for 350 years. It is just that they were all getting destroyed and we had to decide that they were historic.

But anyway, I wanted to tell you, General, that wherever I have been in New Mexico, and whatever I have done in the past, the only public facility or structure of any kind, size, insignificant or significant, that has ever been named after me is an acequias dam. I think it cost $700,000, and it has a beautiful plaque on it. It says, this is the Domenici Dam.

The problem is the first time that my acequias commissioners put it up they spelled my name wrong. [Laughter.]

How do you think I feel? No; actually it was a great moment, and I have been up there to see it a number of times, and I hope that we can build a lot more of these dams.

Now, let me ask you a very precise question. Does the Corps believe that full Federal funding for scoping and reconnaissance work on these acequias projects is consistent with other similar Corps programs?

General WILLIAMS. Mr. Chairman, I think General Genega can answer that.

Senator DOMENICI. General Genega?

General GENEGA. Sir, it is not at the moment, and, in fact, it would require a change to the law, because the authorization for the acequias projects requires cost sharing throughout. As we testified last year, we think it would be appropriate, and we believe the administration would support that change.

Senator DOMENICI. I understand that. What I should have said: If we propose changing it so that it would be like other projects, would the Corps find there is some rationale to that as you view the problems that have been forthcoming in terms of the reconnaissance work?

General GENEGA. Yes, sir; frankly, that would make it consistent with our other programs.

Senator DOMENICI. I see. I guess I should have asked it that way.

I am going to submit a couple questions on other New Mexico projects for the record for your response.

PROGRAM EXECUTION

Let us talk a little bit about program execution and project scheduling of ongoing work. I think you both have addressed the issue. It has become very, very important because, over the past few years the Congress has been able to utilize funds available to the Corps and not use because of poor estimates and execution to fund the next year construction needs. So, the Corps is catching up work off those unused balances.

Now, we cannot expect to fund the fiscal year 1997 program in the same way, it will be impossible, because as I understand your testimonies, the Corps has gotten a better handle on this and we do not have such a big float in the system with reference to these unused balances. Do we know what caused this problem and are we going to get it fixed? Also, could you bring us up to date on your current and projected performance picture and the levels of unobligated balances that are going into 1997?

Mr. LANCASTER. First of all, Mr. Chairman, we believe that the problem is fixed. It was a matter of over optimism on the part of the Corps for many years in what they thought they could accomplish in 1 year, and the account balance gradually built up.

I will yield to General Williams or General Genega to more specifically respond to your question.

Senator DOMENICI. General Williams?

General WILLIAMS. Mr. Chairman, we will provide for the record the detailed percentages in each of those categories. In addition to what the Secretary has said, we have really concentrated in the last 2 years and have focused on execution, and the results are paying off, and it's reflected in our current execution rates.

[The information follows:]

UNOBLIGATED BALANCE

[In thousands of dollars]

Account	Fiscal year				
	1993	1994	1995	1996	1997
General investigations	33,829	48,812	38,716	22,000	34,000
Construction, general	138,271	100,405	362,582	198,000	23,000
Total	172,100	149,217	401,298	220,000	57,000

FISCAL YEAR 1996 PERFORMANCE

Senator DOMENICI. I am just noting the table attached, Secretary Lancaster, to your testimony.

Mr. LANCASTER. Yes, sir.

Senator DOMENICI. It indicates that in the first quarter of this year, the Corps is spending at 104 percent, correct?

Mr. LANCASTER. Yes, sir.

Senator DOMENICI. Now, 3 years ago the Corps would have been spending at 70 percent. While this is good, it points up that we better know what we are doing or later in the year you may get caught in an antideficient position, right?

Mr. LANCASTER. Yes, sir.

Senator DOMENICI. I think that is good and I am glad the Corps is improving its execution of the budgeted program.

PROJECT REVIEW

On project review process, could we just talk about that for a minute? It is the understanding of the subcommittee that the Corps has reduced the two-tiered technical review system by a system which delegated engineering review authority to the district level. This places design and construction responsibility at the same level. Is that correct?

Mr. LANCASTER. That is correct, Mr. Chairman.

Senator DOMENICI. Does this create a conflict between the duties and responsibilities of the district? General?

General WILLIAMS. Mr. Chairman, in our mind there is not a conflict. We have eliminated several levels of review. Now we have the person who is designing the project, it must be reviewed by someone else, and in a particular district if they have the capability to review in that district they will do so by a separate group of people. If not, they will look to others either within the division or, if they have to, they will go to a private architect-engineer to review.

So in our opinion there is not a conflict of interest, and the process I believe will be a good one.

Senator DOMENICI. And the checks and balances are going to be adequate in your opinion?

Mr. LANCASTER. Yes, sir; checks and balances both at the district level and the division oversight for quality assurance.

Senator DOMENICI. I think that is the only one you have to watch in putting them together, and you have to make sure they have enough manpower, because otherwise you have a bottleneck there.

REINVENTING GOVERNMENT AND DEFICIT REDUCTION TARGETS

I did not hear anything in your testimony, Mr. Secretary, about reinventing Government and deficit reduction as it applied to the Corps. I believe you have a very lofty goal, if I read it right: Between now and 2000, about $1 billion. Could you lay out your plans and specific actions for the next several years to realize the nearly $1 billion in savings I understand the Corps program is being asked to absorb? If you could not do it now, could you do it for the record?

Mr. LANCASTER. For greater detail, we will take that question for the record. I will comment very briefly and General Williams may wish to add to that.

Senator DOMENICI. Please.

[The information follows:]

CORPS CONTRIBUTION TO DEFICIT REDUCTION

You are correct, Mr. Chairman, the Civil Works program will have to contribute in a significant way to deficit reduction. The budget presented for fiscal year 1997 and the associated outyears reflect the amounts expected to be available for the Civil Works program. These levels are achievable through a combination of policy changes, a number of which I have identified in my statement, such as the change in flood control cost sharing and flood plain management requirements, and through the stretchout of schedules for ongoing planning, design and construction work. Under Operation and Maintenance, General, further specific reductions will be required in the outyears in order to remain within the available ceiling. Among the measures under consideration are significant changes in hours of operation at locks and dams; enhanced Federal and non-Federal revenue options; and significant changes in Federal operation and maintenance responsibilities at reservoir, harbor, and hydropower facilities. Most of these proposals will require changes in existing legislation, such as the proposal for discontinuation of maintenance of low use harbors.

PERSONNEL REDUCTIONS

Mr. LANCASTER. We are on a course for reduction in personnel as called for under the administration's program. As I recall, it will require about a reduction in 3,000 FTE's. We are at about a 1,700 figure at this point, but on the glide slope to complete that within the schedule.

The Corps has adopted many new and innovative business practices that we believe will save additional funds at every level of Corps operations, from operations and maintenance to the way we organize and do our work in headquarters, the division, and the district offices. We believe that we are on target to meet those goals.

It will be difficult, just as it will be difficult in all agencies of the Federal Government. But it is a goal that we support, and we believe that in the end we will be able to produce our share of those savings.

General WILLIAMS. I would echo those, Mr. Chairman. In addition, through our partnering initiatives with our contractors, we have saved a lot of money. Our alternate dispute resolution for claims has been very successful. The amount of time that we are cutting out of various processes has produced efficiencies and effectiveness there. And we are also producing a strategic plan, and those plans have to be submitted September 1997, as I recall, for the Government Performance Review Act.

OPERATION AND MAINTENANCE VS. NEW WORK

Senator DOMENICI. Let me just give you an observation and either or both of you may respond if you would like. One way of looking at the reductions that are contemplated under reinventing Government is that it may be so restrictive that the Corps of Engineers' historic flood control, navigation, and other missions may have to be discontinued or, at best, significantly reduced, to a point that the Corps will perform mainly operation and maintenance functions.

Is there any concern that you have about that?

Mr. LANCASTER. Mr. Chairman, we are very concerned about that. That is one of the reasons that we have included in this year's submission several new starts, because the Corps does not want to become an operations and maintenance organization, but we want to continue to contribute to the country's economic development through infrastructure construction.

However, we realize that in order for us to continue to have a construction mission and not become just an O&M operation, we are going to have to be successful in these efforts to reorganize and to better use the funds that we have. And we will continue to be dependent upon the good graces of Congress in appropriating the funds we need for both O&M and for new construction.

Senator DOMENICI. General?

General WILLIAMS. I would echo the Secretary. I think those of us that have served in the trenches, so to speak, feel very strongly about our contributions to the Nation and feel that we have the capability and will be called upon to address many of those issues in the future, especially in the infrastructure area.

Senator DOMENICI. Well, let me just give you my observation. There are a lot of groups and people who have been critical in the past of the Corps of Engineers for this or that or the other. Frankly, I think for the most part you carry a prominent, positive image as far as an entity that contributes to the infrastructure needs of the Nation.

I personally would think that if we were going to reduce the Corps to an operation and maintenance entity, we ought to look around and make sure that we are not getting rid of an enormous asset. As we look at the country, there are so many projects that have to be built by some public entity. They are not all our business, but it would be a shame to have this premier construction capability, construction supervision capacity, thrown away.

This committee will do what it can. We are glad that, to the extent that you have been able, Mr. Secretary, that you have put in some new starts for this very purpose. We know at one other point in history they dwindled almost away, prior to that 1986 Water Resources Development Act. I do not think that the void prior to 1986 served the country very well. You probably went through it.

So, we appreciate your concern.

Mr. LANCASTER. Mr. Chairman, we believe that the Corps of Engineers is one agency in the Federal Government that can demonstrate that for every dollar that we have been appropriated we have returned many dollars to the Federal Treasury and the economy of our country. And we hope that we can continue to be that engine of growth and economic development in this area.

SUBMITTED QUESTIONS

Senator DOMENICI. We are going to submit a series of questions for the record for your response and perhaps other Senators will have questions as well—Senator Byrd has some and Senator Bennett has some. Will you get those to us as soon as you can?

General Williams, this is your tenth appearance before the committee—subcommittee, is that correct?

General WILLIAMS. Ten appearances before the House Appropriations, but only five before this committee, Senator.

Senator DOMENICI. We very much have enjoyed that. Thank you very much for your efforts on behalf of our country, General Williams.

[The following questions were not asked at the hearing, but were submitted to the Corps for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR DOMENICI

DEFICIT REDUCTION EFFORTS

Question. What have been your savings to date?

Answer. The Corps' savings can be calculated in two areas. First, in the area of Civil Program FTE workyears, we can examine actual (1992–1995) and authorized (1996 through 2001) FTE workyears. Second, we can identify savings by looking at some of the Corps most critical streamlining initiatives.

With respect to FTE's, the Corps is on track with the Federal Workforce Restructuring Act of 1994:

FTE	Fiscal year						
	1993	1994	1995	1996	1997	1998	1999
Authorizations	29,194	28,482	27,839	27,555	27,201	26,559	25,808
Use	26,911	27,869	27,661	NA	NA	NA	NA

We expect the decline in FTE authorizations and use to continue, and to result in manpower cost reductions totalling about $1.4 billion during fiscal year 1993–99.

Most manpower savings have been achieved through the reengineering of work processes. USACE has several reengineering initiatives that are aimed at improving our supervisory to employee ratios; reducing internal management directives and the red tape they may generate; reducing the overall cost of doing business through efficiency improvements while improving our customer service. Examples of these initiatives include:

Program and project management.—Over the past 6 years, the Corps has implemented a Program and Project Management system which has replaced vertical stovepipe management with horizontal matrix management. Deployment of the Programs and Project Management Information System (PROMIS)—an improved programs and project management system—is expected to begin in Corps Districts and Divisions during the Summer of 1996. The costs of doing business with and without PROMIS over the next 10 years are projected to be $13.4 million and $25.7 million, respectively, for a savings of $12.3 million with the system.

HR regionalization and modernization.—The Corps is preparing for a major restructuring of its human resource function. By 1998, the number of Human Resource staff in the Corps of Engineers will be reduced by 50 percent (852 FTE's Corps-wide to 491 FTE's).

Corps of Engineers Financial Management System (CEFMS).—In recognition of the important role of automation in improving business and decision making processes, the Corps is deploying CEFMS—a financial management system with an integrated corporate database. CEFMS will be used to accomplish most financial management transactions in the Corps. Savings in civil and military program FTE's expected from use of CEFMS and participation in the DOD initiative to centralize finance and accounting functions into the Defense Finance and Accounting Service (DFAS) total 678 FTE's, including 500 from using CEFMS alone, and 178 from going to a centralized finance center.

OMB's earlier projections of estimated savings upwards of $1.0 billion by the year 2000 were based, in part, on various organizational consolidations which have been precluded by law. The Corps' current plan to close three Major Subordinate Commands—New England, North Central, and Pacific Ocean divisions—redesignating the New England and Pacific Ocean divisions as districts of remaining divisions, are awaiting the approval of the Secretary. The Corps estimates that if this plan is approved, overall savings will be $6–8 million yearly, beginning in fiscal year 1998.

Question. What actions are proposed in the 1997 budget and what are the estimated annual savings through the year 2000?

Answer. The Administration's and Congress' emphasis on balancing the budget and deficit reduction are reflected in a number of ways in the fiscal year 1997 budget.

We are proposing a change in financing of Preconstruction Engineering and Design (PED) projects in order to spread available resources across more activities. Presently, the Corps pays the total cost of PED, then, during construction, recovers applicable cost percentages from local sponsors. Our proposal is that local sponsors pay 25 percent of PED costs during PED, but ultimately the same share as under the current procedure. Accordingly, cost sharing of completed projects would remain unchanged, with no anticipated savings.

In the flood control program, we are proposing federal/nonfederal cost sharing of 50/50 instead of 75/25 established by WRDA 86. We estimate that implementation of this proposal would result in cost avoidance of $82,706,250 during construction.

We are continuing to limit shore protection/beach renourishment projects, while fulfilling existing commitments on continuing projects. De-emphasis of these types of projects was begun in fiscal year 1996 and continues.

The Operation and Maintenance (O&M) program for fiscal year 1997 and the out-years will make substantial contributions toward the Administrations central economic objective of a balanced federal budget. In furtherance of this objective, the Corps reviewed the entire O&M program to determine what measures need to be taken to stay within the constrained budget ceilings. With out-year budget ceilings that continue to decline, the federal government will no longer be able to provide the level of service to which many users have become accustomed. A participatory task force has been established to develop a process to reduce costs by 15 percent over a five-year period and maintain a justified level of service. Details are not fully developed at this time, but a high priority is being placed on this effort.

It is not possible to clearly quantify the overall effect of this combination of direct savings and cost avoidances from fiscal years 1997 through 2000, principally because there is no agreed upon base from which to calculate the savings. However, with these savings and your support, we hope to continue to provide a high level of quality service for projects nationwide.

HARBOR MAINTENANCE TRUST FUND LITIGATION

Question. I believe there are major issues and litigation associated with the use of funds in the Harbor Maintenance Trust Fund. Briefly, what are those issues and what is the status of the litigation?

Answer. There are currently two primary issues concerning the Harbor Maintenance Trust Fund: the growing surplus, which has been a cause for concern for some time, and more recently the constitutionality issue of collecting a tax on exports. A summary judgment issued October 25, 1995, by the United States Court of International Trade in the case *United States Shoe Corp.* v. *the United States* (Court No. 94–11–00668) found the Harbor Maintenance Fee unconstitutional under the Export Clause of the Constitution (Article 1, Section 9, Clause 5), and enjoined the Customs Service from collecting the tax. However, a motion to stay the execution of the judgment pending appeal was granted. Until a decision is rendered in the appellate process, the fee collections and expenditures from the Harbor Maintenance Trust Fund (HMTF) will continue as usual. Meanwhile, the surplus in the HMTF continues to grow, raising concerns in industry regarding the uses of collected fees, the rate at which the fees are collected, and who is or is not paying equitably. The cumulative effect of a less than projected drawdown of the HMTF and increased compliance has created the surplus balance in the fund. While the consitutionality issue is pending, OMB is contemplating proposing a reduction in the Harbor Maintenance Fee, as well as expanding the purposes for which revenues can be used, thus consuming more of the funds available and drawing down the surplus over time.

Question. What are the potential impacts to the Corps' budget or operation and maintenance program?

Answer. If use of the Harbor Maintenance Fee, as applied to exporters, is found to be unconstitutional, revenue from this source would be eliminated. Currently, exports constitute about 26–32 percent of total Harbor Maintenance Fee collections. This amount, approximately $215 million in fiscal year 1995, would not be available to maintain commercial navigation channels. Therefore, these revenues would have to be replaced by appropriations from the General Revenues to sustain the current level of harbor maintenance.

If the litigation is successful, it is likely that we will receive other challenges to the Harbor Maintenance Fee. In 1992, for example, the European Union members of the General Agreement on Tariff and Trade, now the World Trade Organization, challenged the Harbor Maintenance Fee on many of the same grounds as the current litigation. If any other challenge to the Harbor Maintenance Fee is successful, all revenue from this source would be lost. In fiscal year 1995, this amounted to approximately $670.5 million, of which $531.1 million was expended for harbor operation and maintenance activities. Losing this source of revenue would exacerbate the negative impacts on the national debt and the Corps O&M program, since projects may have to be reprioritized and some activities which previously fit within the ceiling, given the Trust Fund offset, would now compete for less funding from within General Revenues.

STATUS OF THE HARBOR MAINTENANCE TRUST FUND

Question. Provide a chart for the record showing the estimated receipts, outlays and ending balances for the years 1996–2000.

Answer. The current estimates of revenues and withdrawals from the Trust Fund, and the resulting balances are as follows:

[In millions of dollars]

	1995	1996	1997	1998	1999	2000
Balance, Oct. 1	451.4	621.2	883.9	1,150.0	1,530.5	2,021.0
Receipts:						
Harbor maintenance fee	670.5	730.9	817.9	906.1	985.7	1,044.0
Interest on investments	30.4	45.2	57.1	69.3	88.8	114.1
Total receipts	700.9	776.1	875.0	975.4	1,074.5	1,158.1
Outlays:						
Corps of Engineers O&M	519.2	500.0	528.0	513.0	505.0	495.0
Pending legislation: Corps of Engineers construction			22.0	22.0	20.0	20.0
St. Lawrence Seaway Development Corp./Department of Transportation	10.4	10.4	10.4	10.4	9.5	9.5
St. Lawrence Seaway Development Corp./Toll rebates	1.5					
Administrative expenses for Treasury		3.0	3.0	4.0	4.0	4.0
Pending legislation: NOAA			45.5	45.5	45.5	45.5
Total outlays	531.1	513.4	608.9	594.9	584.0	574.0
Balance, Sep. 30	621.2	883.9	1,150.0	1,530.5	2,021.0	2,605.1

MINIMUM DREDGE FLEET

Question. For several years, the Energy and Water Development bill has carried a requirement that 7.5 million cubic yards of hopper dredging work normally accomplished government owned dredges be put out to bid for the private sector to undertake.

Has the Corps adjusted its dredging volumes and program to reflect the intent of this provision on a permanent basis?

Answer. Yes, on February 13, 1995, the Acting Assistant Secretary of the Army for Civil Works directed the Corps to include the 7.5 million cubic yards in the normal schedule of work to be advertised for industry bid, beginning in fiscal year 1996. I support this course of action.

Question. Will statutory language be necessary in the fiscal year 1997 Energy and Water bill to ensure the 7.5 million cubic yard set aside is again made available to the private sector?

Answer. No, the Corps will continue to comply with the intent of Congress through administrative procedures.

DREDGE MC FARLAND

Question. The 1996 budget included $8 million to rehabilitate the dredge McFarland, but section 101(c) of Public Law 104–46 limited the Corps to normal maintenance and repair work necessary to maintain the vessel's current operational condition.

How has the Corps preceded with necessary maintenance and repair work to the dredge McFarland and what funding is being requested for the dredge McFarland in 1997?

Answer. The Corps is performing only normal maintenance and repairs necessary to maintain the vessel in its current operational condition. No funds are included in the President's fiscal year 1997 budget for repairs to the McFarland. The daily rental rate of each Corps dredge includes an incremental amount to pay for normal maintenance.

RESTRUCTURING OF THE CORPS OF ENGINEERS

Question. Update the committee on your plans to restructure the Corps of Engineers

Answer. The division office restructuring plan will be submitted to the Secretary of the Army for his review soon. We are coordinating with the affected delegations to understand and resolve their concerns.

Question. How are you proceeding with the restructuring of District Offices?

Answer. The effort to provide guidelines to the divisions on restructuring district offices is being coordinated between myself and senior Army leaders. It will then be sent to the Secretary of the Army for approval.

Question. I understand that in response to language in the Energy and Water Development bill, the number of Corps Division Offices will be reduced from 13 to 8. What are the estimated annual savings resulting from reducing the Division Offices to 8?

Answer. The proposed plan to reduce the number of Division Offices from the current 11 to 8 is still pending approval by the Secretary of the Army. Once we have an approved plan, an implementation plan will be developed and savings projections will be formulated. We do not have firm estimates available at this time. However, preliminary estimates based on current staffing levels at the affected divisions, less staffing adjustments for realigned districts, are that about 70–80 FTE's would be saved, generating savings of approximately $6.5 to $8 million annually by fiscal year 1998.

DREDGE MATERIAL DISPOSAL FACILITY—POLICY CHANGE

Question. The fiscal year 1997 budget proposes to include dredge material disposal facility costs within the scope of total shared project costs and to expand the use of the Harbor Maintenance Trust Fund in several significant ways.

Why are these changes being recommended and what are the potential budgetary impacts? Who currently pays for the construction of dredge material disposal facilities?

Answer. The driving force behind the proposal is to establish a consistent cost sharing policy for the disposal of dredged material, and reduce the bias against land-side disposal of dredged material. The current cost sharing policy for land-side and confined disposal facilities is not consistent, and varies from project to project depending when the project was authorized. In many cases it is a 100 percent non-Federal responsibility; in a few cases the costs are Federal and in other cases the authorizing documents do not assign the cost for disposal facilities to either the non-Federal sponsor or Federal government.

A second issue is that for navigation project maintenance, upland confined disposal costs are often a 100 percent non-Federal responsibility, but open water disposal is 100 percent Federal cost from the Harbor Maintenance Trust Fund. This policy favors open water disposal because the non-Federal sponsor is not required to share in the cost of open water disposal. The proposed legislation would reduce this bias by providing for cost sharing of land-side and confined disposal facilities under the same cost sharing rules as for Construction, General, typically about a 35 percent non-Federal share depending on the depth of the project. The use of the Harbor Maintenance Trust Fund for the Federal share of these disposal facilities is consistent with the authorized purpose of this fund since the disposal facilities will be used for the maintenance of commercial navigation projects. The additional Federal cost of this proposal would likely vary from year to year as the demand for facilities varies. However, the additional annual cost would be no more than $5–$15 million during any given year.

RECREATION AND LOW USE HARBORS

Question. I understand the Administration is moving to eliminate funding for maintenance of recreation and low use harbors beginning in fiscal year 1998. Could you bring the committee up to date on this proposal and the saving anticipated from eliminating maintenance of these projects?

Answer. The list of projects which the Corps is proposing to discontinue maintenance is currently being developed. We will provide the Committee with the list when it is complete. Regarding maintenance of recreation harbors, these projects generate significant regional and local benefits that users can reasonably be expected to finance. We anticipate that, beginning in fiscal year 1998, the Civil Works budget would not include funding to dredge harbors without commercial traffic unless a new, dedicated source of funding can be established based on the "beneficiary pay" principle. The Administration also is proposing to discontinue maintenance of low commercial use harbors in fiscal year 1998. I recognize, however, that many small communities whose incomes are derived principally from commercial fishing and related activities would be hurt by such a policy. In addition to these communities, I realize that there are areas in Alaska, Hawaii and certain U.S. Territories where a community, because of its geographic location, receives most of its subsistence needs from its harbor. These communities need to be given appropriate consideration in applying any new policy. I would like to work closely with Congress and other affected interests to develop a rational policy that will meet our deficit reduction goals in a way that is both equitable and efficient and which recognizes the special needs of these communities. We will be analyzing the savings that would be generated by these proposals and will share the results of this analysis with the Committees upon completion.

Question. What other mechanisms are being considered or proposed to provide continued maintenance absent Federal maintenance dollars?

Answer. One example would be a small engine fuel tax collected and transferred into a special account, similar to the Coastal Wetlands Planning, Protection and Restoration Program. It may also be more desirable to allow states and local government to levy the fees on the beneficiaries of these projects. That would allow the states to set dredging priorities and determine the appropriate method of assessing the charges on beneficiaries.

LIST OF PORTS AND HARBORS

Question. Provide a list for the record of those ports and harbors which have the potential of being dropped from the Corps' O&M program.

Answer. The list of projects which the Corps is proposing to discontinue maintenance is currently being developed. We will provide the Committee with the list when it is complete.

PROGRAM EXECUTION AND PROJECT SCHEDULES

Question. Over the past several years, the Corps' expenditure performance has been below par. As an example, I believe that in 1994 the Corps expended on average only 73 percent of their available funds. This resulted in large unobligated carryover balances which OMB and Congress used to finance subsequent years funding needs.

Could you bring the committee up to date on your current and projected performance picture and the expected level of unobligated balances going into 1997?

Answer. In fiscal year 1995, 79 percent of available funds were expended, up 6 percent from fiscal year 1994. The projected performance in fiscal year 1996 is considerably higher, 90 percent of available funds, which will result in the lowest unobligated balance in quite some time. Approximately $270 million is projected as carryover into fiscal year 1997.

Since the principal problem with unobligated balances resulted from poor performance in the construction program, I will describe the corrective measures the Corps has taken within that account, and provide you with the most current program performance information for that portion of our total program. At the end of fiscal year 1994, we had expended 56 percent of available Construction, General funds, and unexpended carryover totaled $821 million. Last year, the Corps took a hard look at schedules for continuing construction projects and adjusted many of them in recognition of the fact that they were overly optimistic. A goal was then set of expending 95 percent of these scheduled funds. At the end of fiscal year 1995, that goal had been exceeded, and the Corps expended at 99 percent of their scheduled rate. The rate of expenditure of available funds rose to 66 percent. This reduced the unexpended carryover to $583 million. At mid-year in fiscal year 1996, the Corps is expending funds at a rate well above the 95 percent goal and slightly in excess of the scheduled rate. If this rate continues, unexpended carryover at the end of this year will total $242 million. Approximately $154 million of this consists of funds earmarked in law for specific purposes. The remaining $88 million will represent the upper limit of Corps ability to respond to unexpected requirements. Recently, for example, the construction account provided $22 million to fund important ongoing work normally funded from the Flood Control and Coastal Emergencies account. We expect those funds to be restored, but the unexpended carryover into fiscal year 1997 will still be the smallest it has been in recent history.

Question. Are you concerned about the level of available funding resources needed to efficiently manage the construction program? Why?

Answer. Mr. Chairman, I believe that the fiscal year 1997 request includes a satisfactory funding level. Funding levels presently included in our approved program for fiscal years 1998 through 2001, however, do not allow us to meet schedules provided to this subcommittee in earlier testimony. The net effect of this slowdown on the execution of continuing construction projects is to delay the realization of economic benefits the projects will produce and to raise construction costs by an amount greater than a simple inflationary adjustment as the result of scheduling contracts in smaller increments.

Question. What caused this situation?

Answer. Simply stated, agreed upon Federal resources are not expected to be available to pursue all desired Federal investments during this period. The program is simply bearing its appropriate share of this shortage.

Question. What will be the impact on ongoing projects? How does the Corps plan to manage or limit these impacts?

Answer. Mr. Chairman, as I mentioned earlier, the Corps took a hard look last year at schedules for continuing construction projects and adjusted many of them in recognition of the fact that they were overly optimistic. At mid-year in fiscal year 1996, the Corps is expending funds at a rate slightly in excess of the scheduled rate. The Corps is closely monitoring the progress of the forty largest construction projects, since these projects represent about one-half of scheduled expenditures. Some new contract awards are being delayed to keep adverse impacts to continuing contracts as small as possible. Assuming outyear funding levels are not increased, we expect the schedules of continuing projects to slip on average two or three years, with the slippages equitably distributed.

Question. What can the committee do to assist in mitigating the impacts on the 1997 program?

Answer. Mr. Chairman, I believe our request will provide sufficient budget authority to execute the fiscal year 1997 program. Both the House and Senate subcommittees have, in the past, been exceptionally timely in disposing of the Civil Works budget request and enacting appropriations bills acceptable to the President. I would ask for your continued good efforts.

ENGINEERING AND DESIGN REVIEW PROCESS

Question. The committee understands that the Corps has reduced the two-tiered technical review by a system which delegated engineering review authority to the district level. This places design and construction responsibility at the same level.

Doesn't this create a serious conflict by having design and construction duties and responsibilities at the same location?

Answer. The Corps has not changed the process of design and construction, which will continue to be at the District level. It is technical review of documents that will now also take place at the District level, where they are produced, rather than at Divisions, where it has been performed in the past. Even though we have transferred responsibility for technical review to the producing districts, we require the districts provide for an independent review of design. Divisions are now responsible for quality assurance by putting into place processes to perform the necessary detailed technical reviews at the Districts. This process will enhance close coordination between design, construction, and operations professionals. Design engineers are accountable for the constructability of the project and are now more inclined to visit the construction site and participate in the final inspection of completed projects. Construction and operations personnel can readily contact the design engineers with questions or problems. This new review process has not eliminated the Corps' role to manage construction and assure construction quality. Construction is still accomplished by qualified contract firms who have Quality Control responsibilities.

Question. Could this pose a serious threat to public safety through inadequate, independent review?

Answer. The district is responsible to perform an independent technical review of each step in the planning and design process, using experienced, qualified personnel who have not participated in the original design. This process of accomplishing an independent technical review at the district level will identify any serious design errors much earlier than in the previous Corps review process. We do not foresee any threat to public safety in this new process. The Divisions will have a quality assurance role to ensure districts consider and follow sound engineering procedures. The Corps HQ office will review district decision documents for policy compliance and to ensure they comply with Administration guidance.

Question. Are sufficient personnel resources available at the Districts to ensure timely, adequate technical reviews?

Answer. If a district does not have adequate technical review capability they can call on other districts, solicit specific division experts, or Architect-Engineer firms can be called upon to assist in performing this function. In addition, the various Corps laboratories continue to be utilized for technical assistance, as necessary.

Question. Have any design errors been spotted using the new technical review system? Does the new system create a situation that makes it more difficult to identify design errors?

Answer. Review of comments from independent technical reviews indicate that minor design errors and oversights have been identified by the independent district technical review teams. In most cases, however, comments identify concerns of clarity and interpretation, as opposed to any design deficiency which would effect the safety or operation of the project. In fact, the new system makes it easier to identify design concerns during the preparation of design rather than after the document is complete and sent forward. We anticipate the districts to become much stronger engineering offices because of the proximity of the independent review team and their professional knowledge and integrity.

Question. How are these critical "checks and balances" being provided in the new system?

Answer. HQ will continue to establish policy and review decision documents to ensure compliance with established policy. The division will be working with the districts during product development to ensure proper choices are made in the development process and checking the districts quality control processes, rather than playing a review role at the end. The district design team is accountable for the engineering quality of its work. An Independent Technical Review team will review the work to ensure quality. In the final analysis the district building the project is responsible for a safe, workable project.

Question. Were concerns about the wisdom of changing the review process raised, and if so, how have those concerns been addressed?

Answer. There was much thought given to the pros and cons of changing the review process before the decision was made. In addition, the engineering staffs at Corps divisions and headquarters surfaced many concerns about these changes. We believe we have addressed these concerns and that the new process will provide better, less expensive products through the increased process efficiencies and more clear accountability for the product. A recent Quality Assurance/Quality Control Task Force report confirms that the new process is working and the divisions are confident they can assure quality. We will continue to monitor this new process, but we expect it to work less expensively, more effectively and more efficiently than the previous multi level review. We believe that the current procedure for technical review continues to maintain the same high standards as in the past.

Question. Please provide for the record a list of all studies and projects funded in fiscal year 1996 for which no funding is requested in the fiscal year 1997 budget. Include a brief explanation of why additional funding is not requested.

Answer. Certainly. I will provided it for the record.

[The information follows:]

All Fiscal Year 1996 Conference Studies/Projects not in Fiscal Year 1997 Budget

Study/project	*Reason project not in the fiscal year 1997 budget*
General investigations:	
Amite River and tributaries, LA	Fully funded.
Arkansas River levees, AR	O&M of levees and appurtenances are a local responsibility.
Arkansas River levee, Plum Bayou, AR	O&M of levees and appurtenances are a local responsibility.
Arkansas River, Tucker Creek, AR	O&M of levees and appurtenances are a local responsibility.
Barnegat Inlet to Little Egg Inlet, NJ	Non-Federal beneficiaries are responsible for new shore protection projects.
Bayou Bartholomew, LA	Lacks economic justification.
Black Fox, Murfree and Oakland Springs Wetland, TN	Recreation as a project purpose is not in accord with administration policy.
Brevard County, FL	Non-Federal beneficiaries are responsible for new shore protection projects.
Calcasieu ship channel at Hackberry, LA	Service facilities are a non-Federal responsibility.
Central Connecticut coastal flooding, CT	Being conducted under the continuing authorities program.
Chartiers Creek, PA	Fully funded.
City of Arcadia, water infrastructure restoration, CA	Water supply as a project purpose is not in accord with administration policy.
City of Encinitas, CA	Non-Federal beneficiaries are responsible for new shore protection projects.
Coast of Florida study, FL	Non-Federal beneficiaries are responsible for new shore protection projects.
Daytona Beach shores, FL	Lack of local support.
Eastern Shore, Accomack and Northampton Counties, VA	PED completed.
Espanola Valley, Rio Grande and tributaries, NM	Being conduct under the continuing authorities program.
GIWW–CC Bay to Port Isabel, TX	Lacks economic justification.
Great Egg Inlet to Townsend Inlet, NJ	Non-Federal beneficiaries are responsible for new shore protection projects.
Great Lakes connect channels and HBRS, MI replacement lock	Lack of local cooperation.
Great Lakes remedial action program (Sec 401)	Lack of local cooperation.
Hancock, Harrison and Jackson, MS	Being conducted under the continuing authorities program.
Humboldt Harbor and Bay (deepening), CA	Fully funded.

Indiana State University, IN	The Construction Technology Transfer project with Indiana State is funded for completion.
James River environmental, SD	Lack of local cooperation.
Lackawanna River basin, PA	Lack of local cooperation.
Lake Charles ship channel, by-pass and general anchorage area, LA	Lack of local cooperation.
Lake Dauterive and Lake Fausse Point, LA	Lacks economic justification.
Lake Montauk Harbor, NY	Lack of local support.
Lower Saddle River, Bergen County, NJ	PED completed.
Malibu coastal area, CA	Lack of local support.
Manasquan Inlet to Barnegat Inlet, NJ	Non-Federal beneficiaries are responsible for new shore protection projects.
Mississippi River—Gulf outlet bank erosion, LA	Lack of local cooperation.
Mississippi River levees, IA, IL and MO	Negative reconnaissance report.
Monongahela River comprehensive, WV	Waterfront development as a project purpose is not in accord with administration policy.
Muddy River, MA	Awaiting decision by local sponsor to expand project.
Mussers Dam, PA	Private dams are a non-Federal responsibility.
New York Harbor and adjacent channels, Claremont terminal, NJ	PED completed.
Norco Bluffs, Santa Ana River, CA	Bank stabalization as a project purpose is not in accord with administration policy.
North shore of Long Island, NY	Non-Federal beneficiaries are responsible for new shore protection projects.
NOYO River and Harbor (breakwater), CA	Fully funded.
Ohio River basin study, OH, IL, IN, KY, PA, and WV	Water quality and pollution abatement as a project purpose is not in accord with administration policy.
Ohio River Greenway corridor, IN	Recreation as a project purpose is not in accord with administration policy.
Pacific northwest forest study	Low budget priority.
Panama City beaches, FL	PED complete.
Panama City Harbor, FL	PED complete.
Port Fourchon, LA	PED delayed awaiting authorization.
Reynold's Channel and New York State boat channel, NY	Lack of local support.
Rocky Arroyo/Dark Canyon, Pecos River and tributaries, NM	Lack of local support.
San Clemente Creek, CA	Extent of federal interest under review.
San Diego County, cities of Oceanside and Calsbad, CA	Lack of local support.
San Francisco County, Ocean Beach, CA	Delayed at the request of the local sponsor.

All Fiscal Year 1996 Conference Studies/Projects not in Fiscal Year 1997 Budget—Continued

Study/project	*Reason project not in the fiscal year 1997 budget*
San Joaquin River basin, Caliente Creek stream group, CA	Delayed at the request of the local sponsor.
San Joaquin River basin, Firebaugh and Mendota, CA	Lacks economic justification.
San Lorenzo River, CA	Fully funded.
San Rafael Canal, CA	Fully funded.
Santa Barbara Harbor, CA	Fully funded.
Santa Monica breakwater, CA	Fully funded.
Sny Island, IL	Negative reconnaissance report.
South shore of Staten Island, NY	Non-Federal beneficiaries are responsible for new shore protection projects.
Southeast Chicago, IL	Being conducted under the continuing authorities program.
Tygart Valley River basin environmental mitigation, WV	Fully funded.
Tygart Valley River basin (Barbour County), WV	Lack of local support.
Upper Jordan River, UT	Fully funded.
Upper Kentucky River basin, KY	Water supply as a project purpose is not in accord with administration policy.
Wabash River (scenic corridor), IN	Recreation as a project purpose is not in accord with administration policy.
Washington, DC and vicinity	PED completed.
Watertown and vicinity, SD	Lack of local cooperation.
Waukegan Harbor, IL	Need to resolve O&M dredging issues.
West Virginia port development, WV	Inland ports and waterfront development as a project purpose is not in accord with administration policy.
Construction, general:	
Baltimore Harbor and channels, MD	No plan developed.
Broad top region, PA	Construction of pilot treatment plant is local responsibility.
Broward County, FL	No fiscal year 1997 requirement.
Cedar River Harbor, MI	Project will complete with available funds.
Center Hill Dam, TN (dam safety)	Project will complete with available funds.
Chehalis River, South Aberdeen and Cosmopolis, WA	Project will complete with available funds.
Fort Fisher, NC	Project will complete with available funds.
Four Locks, Illinois waterway, IL (major rehab)	Project will complete with available funds.
Frankfort, South Frankfort, KY	Project will complete with available funds.

Glen Foerd, PA	Streambank erosion control is low priority.
Holbrook, AZ	Project will complete with available funds.
Homer Spit, repair and extension, AK	Project will complete with available funds.
Indiana shoreline erosion, IN	Responsibility of National Park Service.
Indianapolis central waterfront, IN	New recreation is low priority.
Kodiak Harbor, AK	Project will complete with available funds.
Lake Pontchartrain and vicinity, LA (parallel protection)	Incremental cost of preferred plan local responsibility.
Lake Pontchartrain storm water discharge, LA	Modifying of local wastewater treatment plant is low priority.
Lee County, FL (reimbursement)	Periodic nourishment contract expired.
Lev and Tug Forks and Upper Cumb River, WV, VA and KY-Harlan	Lacks economic justification.
Lev and Tug Forks and Upper Cumb River, WV, VA and KY-Hartfield bottom	Lacks economic justification.
Lev and Tug Forks and Upper Cumb River, WV, VA and KY-Middlesboro	Lacks economic justification.
Lev and Tug Forks and Upper Cumb River, WV, VA and KY-Upper Mingo	Lacks economic justification.
Lev and Tug Forks and Upper Cumb River, WV, VA and KY-Williamsburg	Lacks economic justification.
Morro Bay Harbor, CA	Project will complete with available funds.
New York Harbor and adjacent channels, Port Jersey Channel, NJ	No dredged disposal site.
Nogales Wash, AZ	Active elements fully funded.
North Ellenville, NY (def corr)	Project will complete with available funds.
Ohio River flood protection, IN	Operation and maintenance is local responsibility.
Ouachita River levees, LA	Levee repair is non-Federal responsibility.
Pascagoula Harbor, MS	Project will complete with available funds.
Red River below Denison Dam, LA, AR, TX	Levee repair is non-Federal responsibility.
Red River emergency bank protection, AR	No plan developed.
Sacramento River deepwater ship channel, CA	Lack of local financing.
Sacramento River flood control project, CA (def corr)	Project will complete with available funds.
Sacramento urban area levee reconstruction, CA	Local sponsor unable to cost share.
Salem River, NJ	Project will complete with available funds.
Salyersville, KY	Incremental cost of preferred plan local responsibility.
San Diego River and Mission Bay, CA	Project will complete with available funds.
Sarasota County, FL	Periodic nourishment not required in fiscal year 1997.
Sonoma baylands wetland demonstration project, CA	Project will complete with available funds.
South Central Pennsylvania, PA	Fully funded to authorized limit.

All Fiscal Year 1996 Conference Studies/Projects not in Fiscal Year 1997 Budget—Continued

Study/project	*Reason project not in the fiscal year 1997 budget*
St. Johns County (St. Augustine beach), FL	New beach nourishment is low priority.
Tombigbee River and tributaries, MS and AL	Programmed work fully funded.
Turtle Creek, PA	Project will complete with available funds.
Virginia Beach, VA	New beach nourishment is low priority.
Wallisville Lake, TX	Water supply is local responsibility.
Wildcat and San Pablo creeks, CA	Project will complete with available funds.
Yolo basin wetlands, Sacramento River, CA	Project will complete with available funds.

REQUIRED AUTHORIZATION

Question. Provide for the record a list showing each study, project, or program included in the fiscal year 1997 budget request which is not authorized or which will require authorization, reauthorization or some type of statutory authority in order for the Corps to use funds requested in the 1997 budget.

Answer. All of the work included in the Corps fiscal year 1997 budget request for the General Investigations, Operation and Maintenance, General, and Mississippi River and Tributaries appropriation accounts is authorized and needs no further authorizing legislation. I will provide for the record a list showing Construction, General, projects that require further authorization to utilize budgeted funds.

[The information follows:]

FISCAL YEAR 1997—WORK REQUIRING FURTHER AUTHORIZATION TO UTILIZE BUDGETED FUNDS

Project name.—Wood River, Grand Isle, NE; Big Sioux River at Sioux Falls, SD; Metropolitan Cincinnati, Duck Creek, OH; Metropolitan Cincinnati, Pond Creek, OH; Arecibo River, PR; San Lorenzo, CA; Chicago Shoreline, IL; and Poplar island, MD.

UNOBLIGATED BALANCES

Question. In your judgement, what is the appropriate level of unobligated balances to carryover from year to year in order to meet the needs in a large, dynamic construction such as your Construction, General program?

Answer. Mr. Chairman, since the Civil Works program does not operate under the full-funding concept, we budget only those funds that are necessary for obligation in the fiscal year. However, so many uncertainties affect actual earnings that we cannot possibly predict the exact amount that can be obligated. Earnings schedules can be affected by contract and labor disputes, changed site conditions, adverse regional weather conditions, local cooperation problems, real estate acquisition delays, court injunctions and other unanticipated situations. Savings and slippage (S&S) amounts, assigned to our budget totals and in the Conference Reports, effectively absorb much of the net discrepancy between estimated and actual earnings. However, any further increase in programmed S&S would jeopardize the Corps ability to finance all of the budgeted work in the event of a more favorable general earnings climate.

With subcommittee concurrence, the Corps intensively manages unobligated funds by reprogramming them to other budgeted work that is moving ahead of schedule or to catch up on work that had slipped from previous years. However, some funds cannot be reprogrammed because they are legislatively earmarked for specific purposes.

Considering the amount of earmarked funds, the current fiscal posture of the Corps funding partners, the number of unresolved court cases and the number of projects that need to get back on schedule, I believe that about $200 million would be a reasonable level of unobligated funds to be carried over at the end of the year. Should there be an improvement in the national economic situation and the overall construction performance record, I would expect to reduce the level of unobligated balances in future years.

UNOBLIGATED BALANCES AT END OF FISCAL YEAR 1996

Question. Provide for the record a list by appropriation account of statutory earmarked projects, studies or activities that had unobligated balances carried over into fiscal year 1996 and where funds are expected to be unobligated and carried over into fiscal year 1997. Include a brief explanation of why the funds have not been spent, and the likelihood of future use of funding.

Answer. Yes, sir; I will.

[The information follows:]

UNOBLIGATED EARMARKED FUNDS AT END OF FISCAL YEAR 1996

[In thousands of dollars]

Project name and State	Fiscal year 1996 unobligated carry-over	Amount to be obligated in fiscal year 1997	Reason funds unobligated at end of fiscal year 1996
General investigations:			
Red River waterway, Shreveport, LA to Dangerfield, TX	1,878	....	Study complete and inactive.
St. Louis Harbor, MO and IL	1,174	645	Excess to current year needs.
St. Genevieve, MO	1,189	499	Excess to current year needs.
Lackawanna River basin, Greenway corridor, PA	217	....	Lack of local sponsor.
Mussers Dam, PA	166	166	Excess to current year needs.
Passaic River mainstem, NJ	2,187	2,187	Excess to current year needs.
Buffalo small boat harbor, NY	15	....	Study complete, no Federal Interest.
Buffalo, NY	126	126	Excess to current year needs.
Geneva State Park, Ashtabula County, OH	109	109	Excess to current year needs.
Olcott Harbor, NY	274	....	Project terminated, lack of local support.
Lake George, Hobart, IN	240	240	Excess to current year needs.
Clinton River spillway, MI	49	....	Project will complete with construction, general funds.
Muddy River, MA	17	....	Awaiting decision by local sponsor to expand project.
West Virginia Port Development	510	510	Awaiting non-Federal money.
West Virginia comprehensive	510	510	Awaiting non-Federal money.
Upper Kentucky River basin, KY	239	....	Excess to study needs.
Indianapolis central waterfront, IN	39	39	Excess to current year needs.
Ohio R. Greenway corridor, IN	14	14	Excess to current year needs.
Kentucky lock addition	24	24	Excess to current year needs.
Biscayne Bay, FL	320	199	Excess to current year needs.
Norco Bluffs, CA	49	49	Excess to current year needs.
La River watercourse	450	450	Excess to current year needs.
Callegus Creek, CA	271	....	Negative report.
Total, general investigations	10,067	5,767	

Construction, general:			
Homer Spit, AK	3,550	3,550	Contractor earnings less than anticipated.
St. George Harbor, AK	1,928		Local financing problems.
Beaver Lake environmental infrastructure, AR	2,977		Grants to locals not authorized
Sac River flood control, CA (GCID)	200	200	Delay pending burec determ of type of fish screens.
Sac River flood control, CA (Little Holland)	2,292	2,292	Congress added more funds than could be used.
Santa Ana River mainstem, CA—San Timoteo Creek	14,500		Local financing problems.
Yolo basin wetlands, CA	100	100	Fully funded multiple-year F&WL effort.
Kissimmee River, FL	14,785	12,326	Congress added more funds than could be used.
Melalucca quarantine, FL	365	365	Continue E&D—insufficient funds for construction.
Port Sutton, FL	350		No project sponsor.
Savanah Harbor deepening, GA	1,975		Contingency reserved for dredging contract.
McCook Thornton Reservoirs, IL	6,654	6,654	Scope of project under negotiation with local sponsor.
O'hare Reservoir, IL	67	67	Construction delayed due to weather.
Indiana shoreline erosion, IN	73	73	Funds excess to current needs.
Indianapolis central waterfront, IN	1,945	1,945	Funds excess to current needs.
Des Moines Recreational River, IA	288	288	Delay in development of conceptual plan.
Arkansas City, KS	451	198	Funds excess to current needs.
Winfield, KS	320	320	Delay in completing GRR.
Salyersville, KY	120		Contingency—PCA requires 5 percent contingencies.
Anacostia, MD (sec 1135)	1,500		No project sponsor.
Roughans Point, MA	20	20	Funds excess to current needs.
Clinton River spillway, MI	414	414	Congress fully funded project.
Silver Bay Harbor, MN	2,329	2,329	Congress fully funded project.
Stillwater, MN	1,000	1,000	Congress fully funded project.
Sowashee Creek, MS	3,466		Local bond referendum defeated.
Ste. Genevieve, MO	3,986	3,986	Funds excess to current needs.
Platte River streambank erosion, NE	1,409		No project sponsor.
Hackensack meadowlands, NJ	2,450		Local Interests desire grant which is not authorized.
NY Harbor collection and removal of drift, NY & NJ	3,301	100	Local financing problems.
Atlantic coast of NYC, Rockaway Inlet to Norton Point, NY	1,050		Design of comfort stations complete.
Rochester Harbor, NY (sec 107)	2,790	2,500	Congress fully funded project.
Hamlet City Lake, NC	1,593	1,593	HTRW problems.
Fort Yates Bridge, ND	359	359	Delay on agreement for archaelogical testing.
Tulsa-West Tulsa, OK	480	480	HTRW problems.
Elk Creek Lake, OR	1,807	1,132	Lawsuits delayed work on defining scope of design.

UNOBLIGATED EARMARKED FUNDS AT END OF FISCAL YEAR 1996—Continued

[In thousands of dollars]

Project name and State	Fiscal year 1996 unobligated carryover	Amount to be obligated in fiscal year 1997	Reason funds unobligated at end of fiscal year 1996
Seafarers Memorial, OR	97		Local financing problems.
Broad Top Run, PA	4,926	4,926	Funds excess to current needs.
Glen Foerd, PA	14	14	Delay in execution of PCA.
Lackawanna River Greenway corridor, PA	1,998		No project sponsor.
Lackawanna, PA (sec 1135)	2,000		No project sponsor.
South Central Pennsylvania environmental, PA	8,400	1,100	Funds excess to current needs.
South Central Pennsylvania environmental, PA	5,398	2,600	Funds excess to current needs.
Narragansett town beach, RI	101		No project sponsor.
Quonset Point, RI	371	371	Sponsor delivered P&S late.
Seekonk, RI	131		Funds insufficient to construct—902(a) problem.
Red River below Denison Dam, AR, LA & TX	2,170	2,170	Local sponsor unable to provide rights of way.
Red River below Denison Dam, AR, LA & TX	300	300	Delay in completing feature design memorandum.
Levisa and Tug Fork, WV, KY & VA	9,087	9,087	Funds excess to current needs.
Richmond filtration plant, VA	400	400	Contractor earnings less than anticipated.
Virginia Beach, VA	48	48	Delay in execution of PCA.
La Connor, WA	30		Project complete.
Southern West Virginia environmental, WV	4,437	3,500	Delay due local sponsors not approving project.
Total for construction, general	120,802	66,807	
Operation and maintenance:			
Tucson diversion channel, AZ	100	100	Project has experienced delays in negotiating a Project Cooperation Agreement.
Oceanside experimental sand bypass, CA	100	100	Studies indicate the bypass concept is not economically feasible. Request is being drafted to dismantle this project, if approved only $100K will be carried over unobligated for contract supervision. There is presently $3.5 million unobligated.
Hansen Dam, CA	200	200	Experienced delays in negotiating a Project Cooperation Agreement.
Sepulveda Dam, CA	1,750	1,750	Experienced delays in negotiating a Project Cooperation Agreement.

Flint River (Saginaw), MI	200	....	All work will be complete in fiscal year 1997 with the exception of the Faber Dam (an inflatable dam), which is not part of the original authorized project design. This portion was added after the project was turned over to the locals. Approximately $200K will not be utilized on this project unless additional authorization is approved.
Toledo Harbor, OH	300	300	This study is anticipated to be complete in fiscal year 1997 and all funds will be obligated in fiscal year 1997.
Erie Harbor, PA	500	500	This project was originally estimated to cost $2000K with 50/50 percent cost-sharing. The cost has escalated from $2000K to $6000K and a new Project Cooperation Agreement is being negotiated. Once the agreement is signed, a reprogramming request will be processed to complete this project at full Federal expense.
Raystown Lake, PA	2,140	2,140	This project was delayed pending determination of requirement for local cost-sharing. A decision was made to accomplish the work using full Federal funding. All the funds will be obligated in fiscal year 1997.
Charleston Harbor rediversion (fish lift), SC	2,300	1,900	Our Waterways Experiment Station has been conducting engineering, design and testing of this effort and a contract is anticipated to be awarded late this fiscal year. Coordination has been conducted with State of South Carolina, EPA, Fish & Wildlife Services to assure agreement. $400,000 will be carried over at the end of fiscal year 1997 to fund continued coordination in fiscal year 1998 and fiscal year 1999. This project has been successful beyond expectations in attracting an abundance of fish.
Total for operation and maintenance, general	7,590	6,990	

BALANCE-TO-COMPLETE REPORT

Question. Provide for the record an updated "balance to complete" report similar to that submitted to the House Energy and Water Development subcommittee last year.

Answer. Yes, sir.

[The information follows:]

SUMMARY OF PRECONSTRUCTION ENGINEERING AND DESIGN (PED) AND CONSTRUCTION IN FISCAL YEAR 1997 BUDGET REQUEST

[In thousands of dollars]

	No. of projects	Estimated Federal cost	Allocations through 1996	Budget request	Balance to complete	
					Programed	Unprogramed
Prior to authorization: Continuing PED	40	2,445,025	65,792	25,246	24,574	2,329,413
Navigation	17	997,354	35,657	11,780	5,755	944,162
Beach erosion control	2	241,340	1,775	1,025		238,540
Flood control	19	956,381	17,916	10,653	18,301	909,511
Multiple purpose	1	45,200	1,232	1,000	518	42,450
MR&T feature	1	204,750	9,212	788		194,750
Fully authorized projects: PED new start/flood control	1	23,400		600	1,275	21,525
Continuing PED	22	1,488,936	78,435	13,682	14,484	1,382,335
Navigation	10	481,863	21,677	4,241	2,955	452,990
Beach erosion control	1	11,622	1,282	400	75	9,865
Flood control	11	995,451	55,476	9,041	11,454	919,480
PED total	63	3,957,361	144,227	39,528	40,333	3,733,273
Construction new starts	13	195,957	16,535	16,440	162,322	660
Navigation	1	10,116	1,206	4,000	4,910	
Beach erosion control	1	8,100	1,015	1,300	5,785	
Flood control	10	172,041	12,289	10,990	148,102	660
MR&T feature	1	5,700	2,025	150	3,525	
Continuing construction	152	34,624,138	16,982,726	971,933	12,069,022	4,600,457
Navigation	33	8,720,699	4,916,087	240,522	2,250,668	1,313,422
Beach erosion control	14	2,744,981	282,423	75,877	2,346,275	40,406
Flood control	83	9,888,766	4,273,943	335,217	2,378,573	2,901,033
Multiple purpose	6	3,105,280	1,928,275	121,400	1,055,605	
Environmental restoration	3	519,900	33,564	25,206	461,130	
MR&T features	13	9,644,512	5,548,434	173,711	3,576,771	345,596

SUMMARY OF PRECONSTRUCTION ENGINEERING AND DESIGN (PED) AND CONSTRUCTION IN FISCAL YEAR 1997 BUDGET REQUEST—Continued

[In thousands of dollars]

	No. of projects	Estimated Federal cost	Allocations through 1996	Budget request	Balance to complete	
					Programed	Unprogramed
Major rehabilitation (CG)	16	545,820	57,002	53,337	435,481	
Navigation	4	78,880	14,047	12,800	52,033	
Flood control	3	56,600	5,028	8,600	42,972	
Multiple purpose	9	410,340	37,927	31,937	340,476	
Dam safety assurance	12	212,364	53,640	9,250	149,474	
Navigation	1	14,600	540	680	13,380	
Flood control	8	67,850	15,130	6,220	46,500	
Multiple purpose	3	129,914	37,970	2,350	89,594	
Construction total	193	35,578,279	17,109,903	1,050,960	12,816,299	4,601,117
Grand total	256	39,535,640	17,254,130	1,090,488	12,856,632	8,334,390

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
BEACH EROSION							
NAN	LONG BEACH ISLAND, NY	35,500	1,550	808	742	0	33,950
NAO	SANDBRIDGE, VIRGINIA BEACH, VA	205,840	1,250	967	283	0	204,590
	TOTALS	241,340	2,800	1,775	1,025	0	238,540
	NO. OF PROJECTS	2					
FLOOD CONTROL							
NPA	COOK INLET, AK	1,280	150	0	150	0	1,130
SPL	TUCSON DRAINAGE AREA, AZ	18,000	1,725	0	500	1,225	16,275
SPK	AMERICAN RIVER WATERSHED, CA	518,000	19,200	14,965	3,500	735	498,800
SPK	KAWEAH RIVER, CA	29,500	3,900	50	600	3,250	25,600
SPK	N CA STREAMS, WINTERS & VICINITY, CA	750	150	0	150	0	600
SPL	SEVEN OAKS AND PRADO DAMS WATER CONSERVATION, CA	750	750	0	250	500	0
NCC	DES PLAINES RIVER, IL	75,000	750	0	350	400	74,250
ORL	INDIANAPOLIS, WHITE RIVER (NORTH), IN	16,600	525	50	475	0	16,075
MRK	TURKEY CREEK BASIN, KS & MO	22,000	825	0	25	800	21,175
ORL	METROPOLITAN LOUISVILLE, BEARGRASS CREEK, KY	10,250	900	0	150	750	9,350
LMN	EAST BATON ROUGE PARISH, LA	91,000	2,100	667	400	1,033	88,900
LMN	WEST BANK - EAST OF HARVEY CANAL, LA	66,650	1,679	1,629	50	0	64,971
NAB	JENNINGS RANDOLPH LAKE - REALLOCATION, MD & WV	1,900	1,425	0	37	1,388	475
NCS	CROOKSTON, MN	7,500	750	0	190	560	6,750
LMK	JACKSON METROPOLITAN AREA, MS	67,326	8,791	355	2,790	5,646	58,535

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
						PROGRAMMED	UNPROGRAMMED
FLOOD CONTROL							
MRK	BLUE RIVER BASIN, KANSAS CITY, MO	10,400	1,800	7	450	1,343	8,600
SWA	LAS CRUCES, EL PASO AND VICINITY, NM	4,600	400	193	207	0	4,200
SAJ	RIO NIGUA AT SALINAS, PR	11,175	900	0	329	571	10,275
SWF	GRAHAM, TX (BRAZOS RIVER BASIN)	3,700	150	0	50	100	3,550
	TOTALS	956,381	46,870	17,916	10,653	18,301	909,511
	NO. OF PROJECTS	19					
MULTIPLE PURPOSE							
NPP	WILLAMETTE RIVER TEMPERATURE CONTROL, OR	45,200	2,750	1,232	1,000	518	42,450
	TOTALS	45,200	2,750	1,232	1,000	518	42,450
	NO. OF PROJECTS	1					
NAVIGATION							
NPA	CHIGNIK HARBOR, AK	10,770	237	176	61	0	10,533
NPA	ST PAUL HARBOR, AK	8,800	150	0	150	0	8,650
SPN	CRESCENT CITY HARBOR, CA	1,300	660	165	495	0	640
SPL	PORT OF LONG BEACH (DEEPENING), CA	14,640	750	556	194	0	13,890
SAJ	HILLSBORO INLET, FL	1,680	600	222	200	178	1,080
SAJ	ST LUCIE INLET, FL	1,100	1,100	296	300	504	0
SAS	LOWER SAVANNAH RIVER, GA & SC	2,265	600	200	400	0	1,665
ORN	KENTUCKY LOCK, KY	235,000	11,500	6,500	3,000	2,000	223,500
NAB	BALTIMORE HARBOR ANCHORAGES & CHANNELS, MD	24,000	675	0	338	337	23,325
SAW	CAPE FEAR - NORTHEAST (CAPE FEAR) RIVER, NC	150,120	1,000	0	1,000	0	149,120

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
NAVIGATION							
SAC	CHARLESTON HARBOR, SC (DEEPENING & WIDENING)	72,800	225	0	225	0	72,575
SWG	GIWW - ARANSAS NATIONAL WILDLIFE REFUGE, TX	20,300	1,575	718	857	0	18,725
SWG	HOUSTON - GALVESTON NAVIGATION CHANNELS, TX	252,754	19,600	17,318	1,900	382	233,154
SAJ	CROWN BAY CHANNEL, VI	525	525	0	100	425	0
NAO	AIWW BRIDGE AT GREAT BRIDGE, VA	22,800	2,000	1,656	344	0	20,800
ORH	LONDON LOCKS AND DAM, WV	12,500	2,295	0	366	1,929	10,205
ORH	MARMET LOCKS AND DAM, WV	166,000	9,700	7,850	1,850	0	156,300
	TOTALS	997,354	53,192	35,657	11,780	5,755	944,162
	NO. OF PROJECTS	17					
	GRAND TOTALS	2,240,275	105,612	56,580	24,458	24,574	2,134,663
	NO. OF PROJECTS	39					

MISSISSIPPI RIVER AND TRIBUTARIES
PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
FLOOD CONTROL							
LMM	EASTERN ARKANSAS REGION (COMPREHENSIVE STUDY), AR	204,750	10,000	9,212	788	0	194,750
	TOTALS	204,750	10,000	9,212	788	0	194,750
	NO. OF PROJECTS	1					
	GRAND TOTALS	204,750	10,000	9,212	788	0	194,750
	NO. OF PROJECTS	1					
FLOOD CONTROL							
SAJ	RIO GUANAJIBO, PR	23,400	1,875	0	600	1,275	21,525
	TOTALS	23,400	1,875	0	600	1,275	21,525
	NO. OF PROJECTS	1					
	GRAND TOTALS	23,400	1,875	0	600	1,275	21,525
	NO. OF PROJECTS	1					
BEACH EROSION							
SAJ	NASSAU COUNTY, FL	11,622	1,757	1,282	400	75	9,865
	TOTALS	11,622	1,757	1,282	400	75	9,865
	NO. OF PROJECTS	1					
FLOOD CONTROL							
SPK	NAPA RIVER, CA	70,800	13,000	12,050	700	250	57,800
SPN	PAJARO RIVER AT WATSONVILLE, CA	10,240	1,770	689	810	271	8,470
LMS	NUTWOOD DRAINAGE AND LEVEE DISTRICT, IL	9,940	1,360	186	100	1,074	8,580
LMN	COMITE RIVER, LA	60,800	6,400	5,559	200	641	54,400

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
						PROGRAMMED	UNPROGRAMMED
NAN	RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ	186,000	24,000	21,219	2,781	0	162,000
SAW	BRUNSWICK COUNTY BEACHES, NC	31,400	3,511	2,592	500	419	27,889
SWG	BRAYS BAYOU, HOUSTON, TX	207,244	6,900	2,889	1,110	2,901	200,344
SWG	CYPRESS CREEK, HOUSTON, TX	104,874	2,800	1,722	400	678	102,074
SWF	DALLAS FLOODWAY EXTENSION, TRINITY RIVER, TX	25,000	4,330	2,150	930	1,250	20,670
SWG	GREENS BAYOU, HOUSTON, TX	137,853	5,600	3,010	860	1,730	132,253
SWG	SOUTH MAIN CHANNEL, TX	151,300	6,300	3,410	650	2,240	145,000
	TOTALS	995,451	75,971	55,476	9,041	11,454	919,480
	NO. OF PROJECTS	11					
NAVIGATION							
NAP	C&D CANAL - BALTIMORE HBR CONN CHANNELS, DE & MD (DEEPENING)	76,100	2,572	0	1,210	1,362	73,528
NAP	DELAWARE RIVER MAIN CHANNEL DEEPENING, DE, NJ & PA	263,040	10,000	9,844	156	0	253,040
NAVIGATION							
SAJ	INTRACOASTAL WATERWAY, PALM BEACH COUNTY, FL	300	300	0	200	100	0
SAJ	TAMPA HARBOR, BIG BEND CHANNEL, FL	442	442	0	250	192	0
POD	KIKIAOLA SMALL BOAT HARBOR, KAUAI, HI	6,197	1,169	576	365	228	5,028
NED	BOSTON HARBOR, MA	20,400	2,100	2,010	90	0	18,300
NAN	ARTHUR KILL CHANNEL - HOWLAND HOOK MARINE TERMINAL, NY & NJ	28,700	3,600	2,296	1,200	104	25,100

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 97 BUDGET (PRIOR TO AUTH)
CONTINUING PED (THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
SAW	WILMINGTON HARBOR - NORTHEAST CAPE FEAR RIVER, NC	25,729	1,980	1,880	100	0	23,749
SAJ	SAN JUAN HARBOR, PR	43,000	3,710	3,223	150	337	39,290
SWG	NECHES RIVER & TRIBUTARIES SALTWATER BARRIER, TX	17,955	3,000	1,848	520	632	14,955
	TOTALS	481,863	28,873	21,677	4,241	2,955	452,990
	NO. OF PROJECTS	10					
	GRAND TOTALS	1,488,936	106,601	78,435	13,682	14,484	1,382,335
	NO. OF PROJECTS	22					

CONSTRUCTION NEW STARTS IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
BEACH EROSION						
NCC	CHICAGO SHORELINE, IL	8,100	1,015	1,300	5,785	0
	TOTALS	8,100	1,015	1,300	5,785	0
	NO. OF PROJECTS	1				
FLOOD CONTROL						
SPK	SAN LORENZO RIVER, CA	9,030	844	200	7,986	0
SPK	UPPER SACRAMENTO AREA LEVEE RECONSTRUCTION, CA	2,890	1,150	300	1,440	0
POD	IAO STREAM FLOOD CONTROL, MAUI, HI (DEF CORR)	12,112	0	345	11,767	0
ORL	METROPOLITAN LOUISVILLE, POND CREEK, KY	8,471	1,153	3,089	4,229	0
MRO	WOOD RIVER, GRAND ISLAND, NE	5,900	850	1,000	4,050	0

CONSTRUCTION NEW STARTS IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
ORL	METROPOLITAN REGION OF CINCINNATI, DUCK CREEK, OH	8,688	1,176	466	7,046	0
ORP	SAW MILL RUN, PITTSBURGH, PA	7,050	2,034	500	3,856	660
SAJ	ARECIBO RIVER, PR	11,700	938	350	10,412	0
SAJ	RIO GRANDE DE LOIZA, PR	89,050	2,646	2,540	83,864	0
MRO	BIG SIOUX RIVER, SIOUX FALLS, SD	17,150	1,498	2,200	13,452	0
	TOTALS	172,041	12,289	10,990	148,102	660
	NO. OF PROJECTS	10				
NAVIGATION						
NPA	KAKE HARBOR, AK	10,116	1,206	4,000	4,910	0
	TOTALS	10,116	1,206	4,000	4,910	0
	NO. OF PROJECTS	1				
	GRAND TOTALS	190,257	14,510	16,290	158,797	660
	NO. OF PROJECTS	12				
FLOOD CONTROL						
LMM	HELENA & VICINITY, AR	5,700	2,025	150	3,525	0
	TOTALS	5,700	2,025	150	3,525	0
	NO. OF PROJECTS	1				
	GRAND TOTALS	5,700	2,025	150	3,525	0
	NO. OF PROJECTS	1				

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
BEACH EROSION						
SPL	SURFSIDE - SUNSET - NEWPORT BEACH, CA	43,200	16,460	5,604	8,960	12,176
NAP	DELAWARE COAST PROTECTION, DE	12,800	4,480	214	8,106	0
SAJ	MARTIN COUNTY, FL	26,000	4,508	109	21,197	186
SAJ	PALM BEACH COUNTY, FL (REIMBURSEMENT)	34,100	8,345	1,919	18,988	4,848
SAJ	PINELLAS COUNTY, FL	129,000	23,405	5,865	82,614	17,116
NAP	CAPE MAY INLET TO LOWER TOWNSHIP, NJ	89,400	11,734	1,965	69,621	6,080
NAP	GREAT EGG HARBOR INLET AND PECK BEACH, NJ	343,000	27,514	380	315,106	0
NAN	SANDY HOOK TO BARNEGAT INLET, NJ	1,098,000	61,894	24,118	1,011,988	0
NAN	EAST ROCKAWAY INLET TO ROCKAWAY INLET AND JAMAICA BAY, NY	61,470	38,237	1,298	21,935	0
NAN	FIRE ISLAND INLET TO MONTAUK POINT, NY	519,400	31,525	13,900	473,975	0
SAW	CAROLINA BEACH AND VICINITY, NC	177,580	17,831	6,533	153,216	0
NCB	PRESQUE ISLE PENINSULA, PA (PERMANENT)	63,035	15,094	485	47,456	0
SAC	MYRTLE BEACH, SC	140,535	14,422	13,000	113,113	0
NAO	VIRGINIA BEACH, VA (REIMBURSEMENT)	7,461	6,974	487	0	0
	TOTALS NO. OF PROJECTS	2,744,981 14	282,423	75,877	2,346,275	40,406
ENVIRONMENTAL REST						
SAJ	KISSIMMEE RIVER, FL	230,400	31,371	3,000	196,029	0
NAB	CHESAPEAKE BAY OYSTER RECOVERY, MD	2,500	632	206	1,662	0

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
NAB	POPLAR ISLAND, MD	287,000	1,561	22,000	263,439	0
	TOTALS NO. OF PROJECTS	519,900 3	33,564	25,206	461,130	0
FLOOD CONTROL						
NPA	BETHEL BANK STABILIZATION, AK	16,133	12,333	3,800	0	0
SPL	CLIFTON, AZ	11,500	11,296	204	0	0
SPL	RILLITO RIVER, AZ	25,000	20,594	4,406	0	0
SPK	COYOTE AND BERRYESSA CREEKS, CA	44,000	30,787	2,400	500	10,313
SPK	GUADALUPE RIVER, CA	63,300	37,678	5,000	20,622	0
SPL	LOS ANGELES COUNTY DRAINAGE AREA, CA	204,000	18,874	14,400	170,726	0
SPK	LOWER SACRAMENTO AREA LEVEE RECONSTRUCTION, CA	3,450	1,002	50	2,398	0
SPK	MARYSVILLE/YUBA CITY LEVEE RECONSTRUCTION, CA	23,600	7,548	4,200	11,852	0
SPK	MERCED COUNTY STREAMS, CA	85,900	16,090	800	870	68,140
SPK	MID-VALLEY AREA LEVEE RECONSTRUCTION, CA	25,700	3,355	100	22,245	0
SPK	SACRAMENTO RIVER BANK PROTECTION PROJECT, CA	159,100	92,523	6,100	38,210	22,267
SPK	SACRAMENTO RIVER, GLENN COLUSA IRRIGATION DISTRICT, CA	10,650	2,893	2,000	0	5,757
SPL	SANTA ANA RIVER MAINSTEM, CA	778,000	445,114	51,020	127,176	154,690
SPL	SANTA PAULA CREEK, CA	20,300	10,606	4,200	5,494	0
SPK	WEST SACRAMENTO, CA	15,700	4,347	5,700	5,653	0

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
SWA	ALAMOSA, CO	5,950	2,607	100	3,243	0
SAJ	CENTRAL AND SOUTHERN FLORIDA, FL	1,366,000	415,172	17,237	83,825	849,766
SAJ	DADE COUNTY, FL	170,400	56,820	2,100	111,391	89
SAJ	FOUR RIVER BASINS, FL	181,000	72,585	580	1,222	106,613
FLOOD CONTROL						
POD	ALENAIO STREAM, HAWAII, HI	10,670	10,170	500	0	0
LMS	EAST ST LOUIS, IL	28,563	22,260	2,300	4,003	0
NCR	LOVES PARK, IL	18,300	8,969	2,000	7,331	0
NCC	MCCOOK AND THORNTON RESERVOIRS (CUP), IL	450,000	22,374	0 1/	0	427,626
NCC	O'HARE RESERVOIR, IL	24,600	22,682	1,918	0	0
LMS	REND LAKE, IL (DEF CORR)	5,880	275	500	5,105	0
NCE	FORT WAYNE METROPOLITAN AREA, IN	33,866	8,553	7,000	18,313	0
NCC	LITTLE CALUMET RIVER, IN	109,000	40,018	11,000	57,982	0
MRK	MISSOURI RIVER LEVEE SYSTEM, IA, NE, KS & MO	126,723	93,663	400	31,896	764
NCR	MUSCATINE ISLAND, IA	6,540	1,198	500	4,842	0
MRO	PERRY CREEK, IA	41,644	9,893	5,363	26,388	0
NCR	WEST DES MOINES, DES MOINES, IA	14,600	11,786	2,814	0	0
SWT	ARKANSAS CITY, KS	28,100	3,025	50	25,025	0
SWT	WINFIELD, KS	10,300	1,987	50	8,263	0

1/ Work to be accomplished with unobligated carryover.

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
LMK	ALOHA - RIGOLETTE, LA	7,333	3,421	1,600	2,312	0
LMN	LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION)	504,000	329,497	4,025	136,796	33,682
LMN	LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION)	79,100	69,309	517	9,274	0
LMN	NEW ORLEANS TO VENICE, LA (HURRICANE PROTECTION)	166,000	136,791	2,300	26,909	0
LMN	SOUTHEAST LOUISIANA, LA	25,000	2,000	10,000	13,000	0
FLOOD CONTROL						
LMN	WESTWEGO TO HARVEY CANAL, LA (HURRICANE PROTECTION)	61,800	22,034	4,206	35,560	0
NED	ROUGHANS POINT, REVERE, MA	7,930	1,779	2,663	3,488	0
NED	TOWN BROOK, QUINCY AND BRAINTREE, MA	27,000	23,863	3,137	0	0
NCS	CHASKA, MN	29,100	27,491	1,609	0	0
NCS	MARSHALL, MN	7,220	1,453	500	5,267	0
MRK	BLUE RIVER CHANNEL, KANSAS CITY, MO	194,000	81,301	8,300	104,399	0
LMS	CAPE GIRARDEAU - JACKSON, MO	33,300	24,482	1,000	5,856	1,962
LMS	MERAMEC RIVER BASIN, VALLEY PARK LEVEE, MO	16,267	7,301	1,600	7,366	0
LMS	ST GENEVIEVE, MO	39,115	8,569	0 1/	0	30,546
MRO	MISSOURI NATIONAL RECREATIONAL RIVER, NE & SD	21,000	1,974	100	5,453	13,473

1/ Work to be accomplished with unobligated carryover.

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
SPL	TROPICANA AND FLAMINGO WASHES, NV	170,000	19,319	10,260	140,421	0
NAP	MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON, NJ	23,500	5,260	8,150	10,090	0
NAN	RAMAPO RIVER AT OAKLAND, NJ	9,025	2,079	250	6,696	0
SWA	ABIQUIU DAM EMERGENCY GATES, NM	4,200	470	1,000	2,730	0
SWA	ACEQUIAS IRRIGATION SYSTEM, NM	63,900	11,740	300	51,860	0
SWA	ALAMOGORDO, NM	34,800	3,425	100	31,275	0
SWA	MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELEN, NM	35,700	6,874	3,700	25,126	0
SWA	RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, NM	56,000	3,295	100	52,605	0
FLOOD CONTROL						
NCS	SHEYENNE RIVER, ND	32,230	21,758	500	9,972	0
NCS	SOURIS RIVER, ND	101,387	99,687	1,700	0	0
ORL	HOLES CREEK, WEST CARROLLTON, OH	3,306	1,076	592	1,638	0
ORH	WEST COLUMBUS, OH	83,000	19,563	11,400	52,037	0
SWT	FRY CREEKS, BIXBY, OK	13,650	4,501	5,000	4,149	0
SWT	MINGO CREEK, TULSA, OK	72,000	57,568	5,100	9,332	0
NPP	ELK CREEK LAKE, OR	174,000	108,551	500	0	64,949
NAB	LACKAWANNA RIVER, OLYPHANT, PA	10,900	2,112	610	8,178	0
NAB	LACKAWANNA RIVER, SCRANTON, PA	15,400	2,375	358	12,667	0

1/ Work to be accomplished with unobligated carryover.

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
NAB	WYOMING VALLEY, PA (LEVEE RAISING)	100,000	15,438	14,063	70,499	0
SAJ	PORTUGUES AND BUCANA RIVERS, PR	416,500	352,059	7,500	61,321 -	4,380
SAJ	RIO DE LA PLATA, PR	62,400	4,006	600	57,794	0
SAJ	RIO PUERTO NUEVO, PR	322,100	16,587	7,663	297,850	0
SWF	BEALS CREEK, BIG SPRING, TX	4,436	3,040	1,396	0	0
SWG	CLEAR CREEK, TX	68,800	16,098	1,700	51,002	0
SWA	EL PASO, TX	113,400	89,226	8,200	15,974	0
SWT	MCGRATH CREEK, WICHITA FALLS, TX	7,580	2,916	900	3,764	0
SWF	RAY ROBERTS LAKE, TX	317,450	314,446	3,004	0	0
SWT	RED RIVER BASIN CHLORIDE CONTROL, TX & OK	225,000	39,013	0 1/	0	185,987
SWF	SAN ANTONIO CHANNEL IMPROVEMENT, TX	147,410	145,810	1,600	0	0
SWG	SIMS BAYOU, HOUSTON, TX	203,600	35,484	11,200	156,916	0
FLOOD CONTROL						
NAO	JAMES R OLIN FLOOD CONTROL PROJECT, VA	34,500	16,242	6,800	3,958	7,500
SAW	ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA	23,500	4,432	1,100	17,968	0
ORN	LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, WV, VA & KY	1,559,938	564,680	6,921	67,048	921,289
NAB	MOOREFIELD, WV	18,000	8,939	6,385	2,676	0
NAB	PETERSBURG, WV	17,900	13,384	4,516	0	0

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
NCS	PORTAGE, WI	6,620	2,148	1,700	2,772	0
	TOTALS	9,888,766	4,273,943	335,217	2,378,573	2,901,033
	NO. OF PROJECTS	83				
MULTIPLE PURPOSE						
SAS	RICHARD B RUSSELL DAM AND LAKE, GA & SC	586,650	583,700	1,500	1,450	0
ORN	BARKLEY DAM AND LAKE BARKLEY, KY & TN	157,299	147,966	4,400	4,933	0
NPP	BONNEVILLE SECOND POWERHOUSE, OR & WA	678,714	678,114	600	0	0
NPP	COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA	74,400	9,572	4,300	60,528	0
NPW	COLUMBIA RIVER FISH MITIGATION, WA, OR & ID	1,376,217	288,113	107,000	981,104	0
NPW	LOWER SNAKE RIVER FISH & WILDLIFE COMPENSATION, WA, OR & ID	232,000	220,810	3,600	7,590	0
	TOTALS	3,105,280	1,928,275	121,400	1,055,605	0
	NO. OF PROJECTS	6				
NAVIGATION						
SAM	BAYOU LA BATRE, AL	6,184	5,061	1,123	0	0
SAM	BLACK WARRIOR AND TOMBIGBEE RIVERS, VICINITY OF JACKSON, AL	16,123	1,565	600	13,958	0
NAVIGATION						
SAM	TENNESSEE - TOMBIGBEE WATERWAY WILDLIFE MITIGATION, AL & MS	87,300	83,019	4,281	0	0
SWL	MCCLELLAN - KERR ARKANSAS RIVER NAVIGATION SYSTEM, AR & OK	632,500	599,465	1,414	31,621	0
SWL	MONTGOMERY POINT LOCK & DAM, AR	200,000	18,614	5,886	0	175,500

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
SPL	LOS ANGELES HARBOR, CA	121,700	4,640	850	116,210	0
SPN	OAKLAND HARBOR, CA	56,025	51,719	4,306	0	0
SPN	RICHMOND HARBOR, CA	24,350	9,116	3,000	12,234	0
SPN	SAN FRANCISCO BAY TO STOCKTON, CA	172,250	65,417	500	0	106,333
SAJ	MANATEE HARBOR, FL	18,585	3,010	2,800	12,775	0
SAJ	MIAMI HARBOR CHANNEL, FL	51,066	15,748	500	34,818	0
POD	KAWAIHAE SMALL BOAT HARBOR, HAWAII, HI	6,178	3,940	2,238	0	0
POD	MAALAEA HARBOR, MAUI, HI	8,810	1,745	517	6,548	0
LMS	MELVIN PRICE LOCK AND DAM, IL & MO	738,932	719,658	4,000	15,274	0
ORL	OLMSTED LOCKS AND DAM, IL & KY	1,020,000	165,224	70,352	784,424	0
NCR	UPPER MISS RIVER SYSTEM ENV MGMT PROG, IL, IA, MO, MN & WI	212,864	127,678	15,694	69,492	0
MRK	MISSOURI RIVER FISH AND WILDLIFE MITIGATION, IA, NE, KS & MO	75,700	29,087	1,600	45,013	0
ORL	MCALPINE LOCKS & DAMS, KY & IN	255,000	10,513	7,501	236,986	0
LMN	MISSISSIPPI RIVER - GULF OUTLET, LA	599,000	103,519	3,100	7,981	484,400
LMN	MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA	161,000	20,420	752	12,895	126,933
LMK	RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LA	1,886,880	1,659,879	4,800	136,723	85,478

CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
NAVIGATION						
LMS	MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO & IL	214,000	180,434	3,400	30,166	0
NAN	KILL VAN KULL AND NEWARK BAY CHANNEL, NY & NJ	326,200	195,038	600	2,048	128,514
NAN	NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT, NY & NJ	130,000	45,196	100	854	83,850
SAW	AIWW - REPLACEMENT OF FEDERAL HIGHWAY BRIDGES, NC	77,100	47,482	6,400	23,218	0
NPP	COOS BAY, OR	8,352	3,307	4,900	145	0
ORP	GRAYS LANDING LOCK AND DAM, MONONGAHELA RIVER, PA	181,000	173,800	100	0	7,100
ORP	LOCKS AND DAMS 2, 3 AND 4, MONONGAHELA RIVER, PA	645,000	28,260	17,100	599,640	0
SWG	CHANNEL TO VICTORIA, TX	22,500	6,529	9,550	6,421	0
SWG	GIWW - SARGENT BEACH, TX	58,600	30,432	18,300	9,868	0
NAO	NORFOLK HARBOR AND CHANNELS (DEEPENING), VA	137,400	18,226	1,200	2,660	115,314
ORH	ROBERT C BYRD LOCKS AND DAM, WV & OH	365,500	319,832	12,158	33,510	0
ORH	WINFIELD LOCKS AND DAM, WV	225,600	168,514	30,900	26,186	0
	TOTALS	8,741,699	4,916,087	240,522	2,271,668	1,313,422
	NO. OF PROJECTS	33				
	GRAND TOTALS	25,000,626	11,434,292	798,222	8,513,251	4,254,861
	NO. OF PROJECTS	139				

MISSISSIPPI RIVER AND TRIBUTARIES
CONTINUING CONSTRUCTION IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	BALANCE TO COMPLETE UNPROGRAMMED
FLOOD CONTROL						
LMV	CHANNEL IMPROVEMENT, AR, IL, KY, LA, MS, MO & TN	3,570,000	2,398,957	50,800	1,120,243	0
LMM	EIGHT MILE CREEK, AR	8,570	2,262	841	5,467	0
LMV	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	1,452,000	776,385	24,369	651,246	0
LMM	ST FRANCIS BASIN, AR & MO	381,000	343,435	8,900	28,665	0
LMK	TENSAS BASIN - OVERALL	475,998	283,475	11,393	67,508	113,622
LMM	WHITEMAN'S CREEK, AR	3,300	869	1,000	1,431	0
LMN	ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	172,000	47,629	5,020	73,063	46,288
LMN	ATCHAFALAYA BASIN, LA	1,650,000	781,790	18,600	849,610	0
LMN	MISSISSIPPI AND LOUISIANA ESTUARINE AREAS, LA & MS	59,000	6,933	800	51,267	0
LMN	MISSISSIPPI DELTA REGION, LA	93,700	44,393	11,800	23,965	13,542
LMK	YAZOO BASIN - OVERALL	1,629,544	804,855	33,164	694,276	97,249
LMM	NONCONNAH CREEK, TN & MS	18,400	9,893	4,000	3,868	639
LMM	WEST TENNESSEE TRIBUTARIES, TN	131,000	47,558	3,024	6,162	74,256
	TOTALS	9,644,512	5,548,434	173,711	3,576,771	345,596
	NO. OF PROJECTS	13				
	GRAND TOTALS	9,644,512	5,548,434	173,711	3,576,771	345,596
	NO. OF PROJECTS	13				

MAJOR REHABILITATION IN FY 97 BUDGET (CG FUNDED)
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
FLOOD CONTROL						
NED	HODGES VILLAGE DAM, MA (MAJOR REHAB)	17,100	0 2/	5,200	11,900	0
NCS	LAKE ASHTABULA AND BALDHILL DAM, ND (MAJOR REHAB)	7,000	3,900	1,200	1,900	0
ORP	JOHNSTOWN, PA (MAJOR REHAB)	32,500	1,128	2,200	29,172	0
	TOTALS	56,600	5,028	8,600	42,972	0
	NO. OF PROJECTS	3				
MULTIPLE PURPOSE						
SAM	WALTER F GEORGE LOCK AND DAM, AL & GA (MAJOR REHAB)	27,400	0 2/	900	26,500	0
SWL	DARDANELLE LOCK AND DAM POWERHOUSE, AR (MAJOR REHAB)	29,700	4,666	6,000	19,034	0
SAM	JIM WOODRUFF LOCK AND DAM POWERHOUSE, FL & GA (MAJOR REHAB)	30,600	550	1,400	28,650	0
SAS	HARTWELL LAKE POWERHOUSE, GA & SC (MAJOR REHAB)	17,700	1,284	8,300	8,116	0
SAS	THURMOND LAKE POWERHOUSE, GA & SC (MAJOR REHAB)	69,700	2,018	4,900	62,782	0
MRO	GARRISON DAM AND POWER PLANT, ND (MAJOR REHAB)	36,100	0 2/	337	35,763	0
NPP	BONNEVILLE POWERHOUSE PHASE I, OR & WA (MAJOR REHAB)	24,040	23,540	500	0	0

2/ New start

MAJOR REHABILITATION IN FY 97 BUDGET (CG FUNDED)
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
NPP	BONNEVILLE POWERHOUSE PHASE II, OR & WA (MAJOR REHAB)	89,100	5,869	6,600	76,631	0
NPP	THE DALLES POWERHOUSE (UNITS 1-14), WA & OR (MAJOR REHAB)	86,000	0 2/	3,000	83,000	0
	TOTALS NO. OF PROJECTS	410,340 9	37,927	31,937	340,476	0
NAVIGATION						
LMS	LOCK AND DAM 24, MISSISSIPPI RIVER, IL & MO (MAJOR REHAB)	23,430	768	3,000	19,662	0
LMS	LOCK AND DAM 25, MISSISSIPPI RIVER, IL & MO (MAJOR REHAB)	21,150	6,372	3,000	11,778	0
NCC	BURNS WATERWAY HARBOR, IN (MAJOR REHAB)	13,600	6,265	4,000	3,335	0
NCR	LOCK AND DAM 14, MISSISSIPPI RIVER, IA (MAJOR REHAB)	20,700	642	2,800	17,258	0
	TOTALS NO. OF PROJECTS	78,880 4	14,047	12,800	52,033	0
	GRAND TOTALS NO. OF PROJECTS	545,820 16	57,002	53,337	435,481	0

2/ New start

DAM SAFETY ASSURANCE IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE PROGRAMMED	UNPROGRAMMED
FLOOD CONTROL						
ORH	DEWEY LAKE, KY (DAM SAFETY)	17,300	1,155	2,000	14,145	0
SWA	GALISTEO DAM, NM (DAM SAFETY)	8,300	265	150	7,885	0
SWA	TWO RIVERS DAM, NM (DAM SAFETY)	3,020	220	250	2,550	0
NCS	HOMME LAKE, ND (DAM SAFETY)	8,190	783	450	6,957	0
NCS	LAKE ASHTABULA AND BALDHILL DAM, ND (DAM SAFETY)	15,800	11,746	1,450	2,604	0
ORH	BEACH CITY LAKE, MUSKINGUM RIVER LAKES, OH (DAM SAFETY)	3,380	221	220	2,939	0
SWF	WACO LAKE, TX (DAM SAFETY)	10,100	380	300	9,420	0
NPS	HOWARD HANSON DAM, WA (DAM SAFETY)	1,760	360	1,400	0	0
	TOTALS	67,850	15,130	6,220	46,500	0
	NO. OF PROJECTS	8				
MULTIPLE PURPOSE						
SWL	TABLE ROCK LAKE, MO & AR (DAM SAFETY)	60,200	900	460	58,840	0
SWT	TENKILLER FERRY LAKE, OK (DAM SAFETY)	32,800	1,356	690	30,754	0
SWF	SAM RAYBURN DAM AND RESERVOIR, TX (DAM SAFETY)	36,914	35,714	1,200	0	0
	TOTALS	129,914	37,970	2,350	89,594	0
	NO. OF PROJECTS	3				

DAM SAFETY ASSURANCE IN FY 97 BUDGET
(THOUSANDS OF DOLLARS)

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 97 BUDGET	BALANCE TO COMPLETE	
					PROGRAMMED	UNPROGRAMMED
FLOOD CONTROL						
ORH	DEWEY LAKE, KY (DAM SAFETY)	17,300	1,155	2,000	14,145	0
SWA	GALISTEO DAM, NM (DAM SAFETY)	8,300	265	150	7,885	0
NAVIGATION						
NCS	PINE RIVER DAM, CROSS LAKE, MN (DAM SAFETY)	14,600	540	680	13,380	0
	TOTALS	14,600	540	680	13,380	0
	NO. OF PROJECTS	1				
	GRAND TOTALS	212,364	53,640	9,250	149,474	0
	NO. OF PROJECTS	12				

KEY TO ABBREVIATIONS

LMV	Lower Mississippi Valley Division
LMM	Memphis District
LMN	New Orleans District
LMS	St. Louis District
LMK	Vicksburg District
MRD	Missouri River Division
MRK	Kansas City District
MRO	Omaha District
NED	New England Division
NAD	North Atlantic Divison
NAB	Baltimore District
NAN	New York District
NAO	Norfolk District
NAP	Philadelphia District
NCD	North Central Division
NCB	Buffalo District
NCC	Chicago District
NCE	Detroit District
NCR	Rock Island District
NCS	St. Paul District
NPD	North Pacific Division
NPA	Alaska District
NPP	Portland District
NPS	Seattle District
NPW	Walla Walla District
ORD	Ohio River Division
ORH	Huntington District
ORL	Louisville District
ORN	Nashville District
ORP	Pittsburgh District
POD	Pacific Ocean Division
SAD	South Atlantic Division
SAC	Charleston District
SAJ	Jacksonville District
SAM	Mobile District
SAS	Savannah District
SAW	Wilmington District
SPD	South Pacific Division
SPL	Los Angeles District
SPK	Sacramento District
SPN	San Francisco District
SWD	Southwestern Division
SWA	Albuquerque District
SWF	Fort Worth District
SWG	Galveston District
SWL	Little Rock District
SWT	Tulsa District

UPPER RIO GRANDE WATER OPERATIONS MODEL, NM AND CO

Question. There is a line item request for $8.5 million for "Coordination Studies With Other Agencies."

For the past several years, the Albuquerque District office and other federal agencies have been developing an Upper Rio Grande Water Operations Model for Enhanced System Management, the purpose of which is to assist Water managers in their decision making on this critical stretch of New Mexico's largest river. It is my understanding that on January 22, 1996, the Corps, the Bureau of Reclamation, the USGS, the Fish and Wildlife Service, and the BIA signed a memorandum of understanding committing those agencies to coordinate with each other in developing this water operations model.

Would the Upper Rio Grande Water Operations Model qualify for funding under the Administration's funding request for "Coordination Studies With Other Agencies?"

Answer. Sir, while the general line item you have cited may seem like an appropriate place to find funds for the Upper Rio Grande Operations Model, the funds are very limited and are for use in all states and with many agencies. We believe a more appropriate place to appropriate the funds required for this study would be in the Operation and Maintenance appropriation under the line item of Scheduling Reservoir Operations.

ACEQUIAS IRRIGATION SYSTEM, NM

Question. Section 1113 of the 1986 Water Resources Development Act established a program whereby the Corps implements a program to maintain the traditional New Mexico ditch system known as "acequias." Currently Section 1113 requires that "the non-Federal share of any work undertaken under this section shall be 25 percent." This has included scoping and reconnaissance work, the cost of which has proven to be a significant burden on the state and the acequias irrigators. Almost all other similar Corps programs, however, provide for full federal funding for scoping and reconnaissance work.

I have been working to change the language of Section 1113 to provide for full federal funding for scoping and reconnaissance work. I believe such a change will help these small irrigators in their efforts to maintain these acequias, irrigation systems which Congress has recognized as "significant in the settlement and development of the western portion of the United States." Last year the Assistant Secretary testified that full federal funding would be consistent with similar Corps activities. As the Senate may soon be considering reauthorization of the Water Resources Development Act, I want to reaffirm the Corps' position on this issue.

Does the Corps believe that full federal funding for scoping and reconnaissance work on acequias projects is consistent with other similar Corps Programs?

Answer. Yes, we do. Full Federal funding of scoping and reconnaissance work for the acequias program, up to an appropriate limit, would be consistent with current policy for management of programs such as the Continuing Authorities Program (CAP). However, the current authorization for the acequias precludes implementation of a similar policy.

LAS CRUCES, NM

Question. I would like to turn your attention to an on-going cooperative flood damage reduction project involving the Corps and the City of Las Cruces, New Mexico. For several years, the Albuquerque District and Las Cruces have been designing a project to address the runoff which plagues the eastern portion of the city as a result of extreme thunderstorms. As I understand it, Headquarters received the District's final feasibility report on the project on November 21, 1995, and that this report was very favorable.

As you know, projects such as the Las Cruces project are authorized under the Water Resources Development Act (WRDA) upon final completion by the Corps headquarters of a feasibility report. I in no way wish to interfere with your usual procedures in reviewing such feasibility reports. However, as Corps headquarters has had the District's report for four months now and because the Senate might soon begin its consideration of the WRDA bill, I am very interested in the current status of the final feasibility report on this important project.

What is the current status of the final feasibility report on the Las Cruces flood damage reduction project?

Answer. Sir, the Feasibility report is undergoing its final review, and is being coordinated with other Federal agencies and interests. We anticipate that the report will be ready for construction authorization in the future WRDA. In the meantime, we are proceeding to prepare plans and specifications for the project.

COST SHARING POLICY

Question. In a related matter, it is my understanding that the Administration is currently proposing to increase from 25 percent to 50 percent the local cost sharing requirements for construction of new start projects that do not have an existing executed Project Cooperation Agreement.

I have serious questions about the fairness of such a proposal on those local interests which have been deeply involved in developing water projects, but which have not yet started actual construction of those projects. Specifically, I refer to the above-mentioned Las Cruces flood damage reduction project. Relying on the current 25 percent local match requirement, Las Cruces has already invested approximately $328,000 on the project's feasibility study, and is ready to meet its cost-share requirement for construction of the project. Because construction on the Las Cruces project has not yet started, however, if the Administration's new policy is adopted those construction costs would double, costing the City millions of dollars more than it had planned for. This seems to me to be changing the rules in the middle of the game.

How does the Administration justify its proposed cost-share policy in the case of local interests which, in reliance of the current 25 percent match, have already invested substantial amounts of money on projects, but which have not yet started construction on those projects?

Answer. Like the non-Federal sponsor, the Federal Government too has made substantial investment in studies and designs prepared under prior policy. As you know, there are many demands of the limited resources of the Federal government and particularly the Corps ability to provide flood protection. The proposed cost sharing policy is an effort to make those funds spread further and provide some flood damage reduction help to more communities by having the individual communities bear more of the financial burden. Without more assistance from local sponsors, the Corps may have to greatly postpone taking on future new construction projects or further stretch out schedules of work. The Corps would like to work with Congress to reach a mutually agreeable policy to solve this problem.

WALLISVILLE LAKE, TX

Question. What is the current status of the Wallisville Project?

Answer. Sir, the project is approximately 70 percent complete. The Galveston District, on 22 December 1995, awarded a $25 million contract for rehabilitation of the lock structure; construction of the navigation channel; gated control structure; administration building; bridge; and earthen dam. Future small construction contracts will provide for the construction of two small water control structures and a recreational facility.

Question. Will the completion of this contract enable the project to become operational?

Answer. Sir, completion of the present contract will only provide for a partially operational project. The remaining water control structures need to be completed before the project will function as designed.

Question. When is the scheduled completion date for Wallisville?

Answer. Sir, the completion date for the Wallisville Lake, Texas, project is dependent on future funding and can not be determined.

Question. What is the Corps of Engineers' spending capability for fiscal year 1997?

Answer. Sir, subject to the normal qualifications on capabilities, the approved capability for fiscal year 1997 is $14,000,000. However, the Administration's review of this project, has identified economic and policy concerns.

Question. What are the funding requirements to complete this project as scheduled?

Answer. Sir, after fiscal year 1996, $23.5 million will be required to complete the Wallisville Lake, Texas, project. We have expressed a funding capability of $14 million in fiscal year 1997 and will have an additional need of $9.5 million in fiscal year 1998 to meet a project completion date of September 1998.

Question. If the expressed capability is not funded, would it be necessary to stop the project?

Answer. Yes Sir, if the capability is not funded, we would be unable to proceed and the current construction contract would be terminated. The project would be stopped until such time that additional funding is made available.

Question. If so, what would it cost?

Answer. Sir, the Federal cost to terminate the contract is estimated to be $5 to $10 million. Should the project be stopped permanently, several project features would have to be removed and scrapped, and the project lands placed into a caretaker status. Complete restoration of the 19,000 acre site is estimated to cost in excess of $100 million.

Question. Have the local sponsors demonstrated their willingness to support this project?

Answer. Sir, the three local sponsors, the city of Houston, the Trinity River Authority and the Chambers-Liberty Counties Navigation District have demonstrated their support for the current plan, consistent with the water supply contract executed by the Secretary of the Army on 2 February 1968.

SAN LORENZO RIVER, CA

Question. Mr. Assistant Secretary, you would provide $200,000 for construction of the San Lorenzo River Flood Control Project in Santa Cruz, California in fiscal year 1997 and I understand that the Corps proposes spending even less than that each year on the project until 2002, when major construction should begin. Could you explain this enormous gap between completion of the proper studies and actual construction?

Answer. We have revised the schedule for construction of the San Lorenzo River flood control project since the President's budget was submitted to you. Our revised schedule will allow for construction to begin in September 1997, with completion of the project by September 1999.

SCHEDULING OF NEW CONSTRUCTION STARTS

Question. I notice that some of the proposed "new construction" projects listed in your budget request would begin construction immediately. What criteria were used for determining which of these new projects would take precedence?

Answer. There are no specific criteria that give priority to starting one budgeted new construction start project ahead of any other budgeted new start construction project. In order to be a candidate for consideration as a new construction start, a project must be at such a state in the design process that award of the first significant construction contract would occur by the fourth quarter of the budget year or the local sponsor would start real estate acquisition for the first significant construction contract so that the contract can be awarded no later than the end of the following fiscal year. This requires that plans and specifications for the first construction contract and needed real estate documents will be ready prior to or early in the budget year. Execution of the project cooperation agreement cannot take place until funds for construction have been appropriated. The local sponsor's financing must also be available when needed. The actual start date for construction of a particular project depends on when all the preparatory requirements are satisfied; and the amount included in the budget for each new start construction project reflects its unique status in the process leading to the actual start of construction.

Question. It is my understanding that the relationship between the Corps and the City of Santa Cruz with regard to the San Lorenzo project dates back to 1957. In light of their substantial financial commitment to this project, as well as the long history, would it not be in everyone's best interest to begin the construction immediately?

Answer. The funding schedule for the San Lorenzo River flood control project has been revised to allow construction to start in fiscal year 1997, four years ahead of the schedule proposed in the President's budget.

QUESTIONS SUBMITTED BY SENATOR HATFIELD

RECREATION HARBOR O&M DREDGING

Question. As someone who has lived on the Oregon coast for many years, and whose state has a number of ports which will be impacted by your proposed changes in the Corps O&M dredging program, I have some questions about your announcement that beginning with the fiscal year 1998 budget you will not include O&M dredging funds for recreation harbors, or for low commercial use harbors. Referring to recreation harbors, you said no dredging would occur unless "a new dedicated source of funding can be established based on the 'beneficiary pay' principle."

I presume that you raised this only after consideration by your staff of alternative methods of creating a way to produce such "beneficiary" funding. Please describe your plan to create a "beneficiary pay" program. Will it be part of your 1996 WRDA legislative package? If you have not completed it, when can this subcommittee see it?

Answer. One example would be a small engine fuel tax collected and transferred into a special account, similar to the Coastal Wetlands Planning, Protection and Restoration Program. It may also be more desirable to allow states and local government to levy the fees on the beneficiaries of these projects. That would allow the states to set dredging priorities and determine the appropriate method of assessing the charges on beneficiaries. We do not anticipate having a recommended alternative funding source ready when the WRDA 96 legislative package is submitted to the House Transportation and Infrastructure Committee. When a recommended alternative funding source is developed, We will provide this Committee, the House Energy and Water Appropriations Subcommittee, and the House Transportation and Infrastructure Subcommittee a copy.

OTHER BENEFICIARY PAY OPTIONS

Question. Can you also provide us with a description of the various alternatives you examined in reaching your preferred method of providing a beneficiary pay formula? In other words, what other "beneficiary pay" options did you examine before deciding on the one you want to pursue?

Answer. When we provide each Committee a copy of the recommended alternative funding method, we will also include an analysis of each considered alternative.

Question. If you do not yet have any preferred alternative, how do you even know whether this is a feasible idea? How practical can it be if you have not decided how it can be accomplished?

Answer. Once the list is developed, we can analyze the impacts. From this analysis, a recommended alternative should emerge.

LOW COMMERCIAL USE HARBORS

Question. Turning next to low commercial use harbors, you state in one sentence that these harbors must be given "appropriate consideration." You next refer to the "special needs" of communities where these ports are located. While those are welcome words, they offer no concrete assurances to the smaller ports of this country. What do these terms "appropriate consideration" and "special needs" actually mean?

Answer. Special needs would be where the communities economy is substantially dependent upon commercial fishing, charter fishing, or related commercial activities or where the harbor is the principle harbor available for the transport of cargo necessary to support the life and economy of the population residing at that geographic location. We will include these special needs in our analysis when developing the list of projects.

Question. Your testimony said you are ready to work with Congress to develop a "rational policy" toward these low use commercial ports. Last year, both Energy and Water Appropriations Subcommittees clearly spoke to this issue in our reports on the bill. Do you recall the tone of those comments? In referring to the need now to develop a "rational policy", I trust you did not think this committee was being irrational last year when we rejected this idea so bluntly?

Answer. Although I was not in this position that afforded me the opportunity to appear before this committee last year, I fully understand the intent of this Committee. For this reason, I intend to work with Congress in developing a policy that is fair to the local communities impacted, fair to the shippers that pay the Harbor Maintenance fee and fair to the general taxpayer.

RESEARCH PRIOR TO THIS CHANGE IN POLICY

Question. I now turn to what analysis and data collection inside the Corps preceded this new policy change regarding small port O&M dredging. Will you please list all "recreation ports" which you believe should be subject to a new beneficiary pay formula in order to receive O&M dredging?

Answer. The list of projects is currently being developed. In developing this list, we will be analyzing the impacts on specific projects.

Question. Please also list all the "low commercial use" harbors where you propose to terminate dredging, whether or not there are "special needs".

Answer. Mr Chairman, as stated earlier, the list of projects is currently being developed. We will provide a complete list when developed and analyzed.

Question. What research has the Corps done to evaluate the impact of such a major policy change to the local communities, to the states which are impacted, to the fishing industry and the cost of fish landed? Will it increase the cost of fish to consumers?

Answer. The Corps has not performed any direct research in determining impacts, since at this time we have not developed a list of projects that the Corps would discontinue maintenance. Communities affected would be given appropriate consideration in applying any new policy. We are optimistic, however, that proposed legislation will be included in WRDA 96 that expands the definition of subsistence harbors to include commercial fishing ports.

TAX ON SMALL FISHING COMMUNITIES

Question. Will some people in these communities see this as a tax on the small coastal fishing communities if they must absorb new O&M dredging costs?

Answer. As we continue to develop and discuss this policy, we will give consideration to fishing ports where the communities' economy is substantially dependent upon commercial fishing, charter fishing, or related commercial activities. We propose to continue to maintain harbors where they are the principal harbor available for the transport of cargo necessary to support the life and economy of the population residing at that geographic location.

Question. What research was conducted prior to last year's policy initiative impacting small port O&M dredging? What research was performed prior to this year's decision? In determining the local impact of this policy change, did the Corps talk with any of these ports to examine the impact, or is this a "green eyeshade" decision?

Answer. No actual research was performed prior to the policy initiative. No ports, at this time, have been contacted to determine direct or indirect impacts.

AVERAGE INCOME OF PORT COMMUNITIES

Question. How does the average income of each port community impacted by this O&M policy change compare to the average income in the state where it is located? With the U.S. average income? Can you provide this committee a description of the various income sources for each of these ports where dredging is to halt under your new plan. Wouldn't that be an important consideration in deciding how other funding sources might be expanded or created?

Answer. We have not assembled this type of data. It would take some time to assimilate the data from the Department of Labor and analyze the data. We will, however, request the Department of Labor for this data once we have prepared a list of projects affected.

Question. What is the Corps estimated budget savings for fiscal year 1998 if this reduction in O&M dredging takes place?

Answer. At this time we have not determined which projects the Corps proposes to discontinue maintenance. Upon completion of the analysis and development of the project listing, I will share this information with the Committee.

COMMERCIAL FISHERIES CURTAILMENT

Question. From your service in Congress, Mr. Secretary, you are aware that the U.S. commercial fishing industry has been hard hit by natural disasters, as well as by over-fishing. Closure of fishing seasons in New England, the Pacific Northwest and the Gulf has created financial hardship for many coastal ports—which may well be the same ports you target to terminate their O&M dredging.

Did your statistical data collection include the impact of the reduction of commercial fishing due to season reductions and/or closures? If your data on tonnage of a port includes only the years when commercial fishing activity had fallen sharply due to the Federal decisions to curtail commercial fishing, would it skew your data on the level of activity in these ports?

Answer. We are using the commercial fishing statistics provided to the Corps Waterborne Statistics Center in New Orleans, Louisiana. We are aware that fishing data is not complete. We will seek other sources, such as, the State Fish and Game Commission, the U.S. National Marine Fisheries Service, and some ports directly to verify the data collected and any information that may help clarify the impacts.

Question. The President already has issued disaster declarations for these communities. How will this decision to curtail O&M dredging be received?

Answer. As I have stated earlier, I am optimistic that proposed legislation will be included in WRDA 96 that exempts subsistence harbors and gives consideration to commercial fishing ports.

Question. If a fishing community already is reeling because of a terrible economic blow brought about by fishing closures, how can such a community have the resources to pay for its own O&M dredging?

Answer. We will work closely with Congress and other affected interests to develop a rational policy that is both equitable and efficient and which recognizes the special needs and economic impact of these communities.

COAST GUARD SMALL BOAT CLOSURES, FISHING SEASON CLOSURES—AND NOW THE LOSS OF O&M DREDGING

Question. Last year, this Administration also proposed curtailing Coast Guard small boat units at a number of smaller ports and harbors around the country. If the Federal government withdraws from O&M dredging services and from vital Coast Guard maritime safety aids, what hope is left for many of these smaller coastal communities?

Answer. The analysis of projects included in the list will include harbors where U.S. Coast Guard stations are located. We may coordinate with the Coast Guard on their short and long range plans for maintaining the station at each harbor that is included on the list. We may also coordinate with each state Governor to obtain their comment on available state assistance for maritime safety, search and rescue operations. We will have a better idea once the list of projects is prepared and analyzed. In addition, the Corps would continue to maintain subsistence ports or ports serving communities where the economy is substantially dependent upon commercial fishing, charter fishing, or related commercial activities. A subsistence port is a maritime port located in Alaska, Hawaii, or any possession of the United States, and which is the principal reliable harbor available to the general public for the transport of cargo necessary to support the life and economy of the population residing at that geographic location.

Question. Is the U.S. Government really just pulling the plug on small coastal communities?

Answer. No, Mr. Chairman. However, if we are to contribute to balancing the budget, it will no longer be possible to maintain all authorized Federal projects.

CONTINUING AUTHORITIES PROGRAM FUNDING

Question. Elsewhere in your testimony, you refer to “full funding” in fiscal year 1997 for the Continuing Authority program. What is “full funding”—what does that term mean? What does that $41 million include? Does it include sufficient funds for all projects with pending paperwork from all corps districts? Is $41 million the maximum amount which the Corps can commit to projects now “in the pipeline” under the Continuing Authority program?

Answer. The term full funding of the Continuing Authorities Program was meant to convey the amount of funds required to keep all projects proceeding at an efficient pace through each stage, that is planning, design and construction, in all sections of the program. The $41 million requested in fiscal year 1997 should enable us to initiate some new work and to keep projects underway proceeding reasonably efficiently. No Corps program is funded at its maximum amount and $41 million will provide for a reasonably healthy program which accepts its fair share of the reductions we have applied to all of our programs as the Administration strives to achieve a balanced budget.

Question. You also referred to reprogramming funds for the remainder of fiscal year 1996 for the Continuing Authority program. What is the total amount of the money being reprogrammed? Please break it down into various components within the Continuing Authority program.

Answer. The total amount reprogrammed from other Construction, General sources was $13 million. We divided that amount as follows, $1 million to Section 14, $700 thousand to Section 103, $2 million to Section 107, $9 million to Section 205, and $300 thousand to Section 208.

Question. Of the projects caught earlier in “mid-phase” without funds to complete that phase, is the reprogramming funding sufficient to bring them all to closure of their current phase?

Answer. All current phases have received or will receive all funds needed for scheduled work through the end of the fiscal year. For phases scheduled to complete next year, the balance of funds needed to complete will come from the fiscal year 1997 appropriation.

Question. When you say that the fiscal year 1996 reprogramming also will allow the Corps to “move forward on many small projects”, does this mean that you now will have sufficient funds because of the reprogramming to move a Section 107 project from design phase into construction phase?

Answer. After satisfying all requirements for continuing phases, we do have some funds available for new phases in Section 107 and have initiated two new design phases. If there are sufficient funds remaining for the project's fiscal year 1996 requirements when the Division approves it for construction, we will commit those funds and permit them to proceed with advertising and award.

COLUMBIA RIVER JUVENILE FISH MITIGATION, OR, WA, AND ID

Question. Your new budget indicates that the total estimated cost of the Columbia River fish by-pass program has increased to $1.382 billion, a $799 million increase over the estimate of $584 million that was included in your fiscal year 1996 budget request. This is a huge increase in the total estimate. I assume there is a perfectly logical explanation for an increase of this magnitude in the total program—please enlighten the Subcommittee on the reasoning for this increase.

Answer. The major causes of the increase in the estimated cost were additional measures called for in the 1995 National Marine Fisheries Service Biological Opinion and inclusion in our budget request of estimated implementation costs that are the likely outcome of research, engineering and design evaluations, prototype testing and regional decisions. Previous budget requests noted that additional costs would be incurred as a result of implementing regional decisions but did not actually attempt to estimate the costs. This approach to presenting the total estimated cost provides a more realistic estimate of ultimate project cost.

Question. How much of the total program has been accomplished to date?

Answer. Approximately 17 percent of the project has been completed based on expenditures through January 1996, as compared to the revised total cost estimate.

Question. Is there an estimate of the total number of years that will be required to accomplish your current objectives?

Answer. We estimate essential completion to be in 2007 which equates to 20 years required to complete the project since initial construction funding in fiscal year 1988.

Question. How much confidence do you have that the $1.382 billion estimate is accurate?

Answer. While this estimate represents our best attempt to approximate ultimate total costs, it is based on many assumptions about outcomes of on-going development, testing, and evaluations and ultimate decisions on long-term courses of action. As you know, the Federal and regional plan is based on an adaptive management framework which requires multiple actions and pathways to be pursued concurrently. Many decisions, which are contingent on results of current and future work and which have potentially significant cost impacts, are yet to be made. For example, we have been asked to aggressively develop and test new juvenile fish bypass technology such as surface bypass. Ultimate application in recovery efforts is uncertain; however, the project cost estimate assumes implementation of this technology at the four Snake River projects. Similarly, continued evaluation of drawdown at the Lower Snake River projects is called for in the Biological Opinion, with decision slated for 1999. The cost estimate does not include drawdown implementation.

Question. How much of the total is expected to be spent on surface bypass systems, and at which projects do you expect surface collectors to be installed?

Answer. The estimate includes $579 million for surface bypass technology development and implementation. Installation is assumed at the four Lower Snake River dams.

Question. How much of the program is attributable to the National Marine Fisheries Service's latest biological opinion?

Answer. It is difficult to speculate hypothetically which activities would have been programmed in absence of the biological opinion but in response to other plans such as the NW Power Planning Council's Fish and Wildlife Program. The biological opinion was issued as the Corps' program was being developed in the context of regional proposals, many of which were incorporated in the opinion.

Question. The Corps' fiscal year 1997 budget request includes $107 million for continuation of the fish by-pass systems at the Federal dams on the Columbia and Snake Rivers. This is a significant increase over the $78.8 million appropriated for the current fiscal year. Please provide the subcommittee with a general idea of how the proposed $107 million will be allocated within the program.

Also please highlight those proposed activities which will receive greater attention or emphasis in fiscal year 1997—are there areas where emphasis has shifted from last year, such as work on surface bypass systems, gas abatement measures, spillway deflectors, etc.

Answer. The general allocation of the budget request, in millions of dollars, among the nine subprojects in the mitigation project, is as follows:

	Millions
Lower Granite	$6.6
McNary	5.2

	Millions
Little Goose	1.2
John Day	15.5
Lower Monumental	1.3
The Dalles	
Ice Harbor	6.5
Bonneville	5.2
Mitigation Analysis	65.5
Total	$107

The following table identifies the types of measures which will be carried out with these funds.

	In millions
Extended length screens and associated modifications	$5.7
Juvenile bypass systems	9.3
Gas abatement evaluations	7.9
Ice Harbor and John Day flow deflectors	13.2
Adult passage improvements	2.6
Surface bypass	31.1
Smolt monitoring facilities	8.2
Lower Snake study (drawdown)	8.5
Juvenile fish transportation improvements	5.2
Miscellaneous measures	15.3
Total	$107

Question. I understand that about $65 million of the $107 million total will be spent in fiscal year 1997 on activities associated with the "Mitigation Analysis" portion of the program. Please explain exactly what the "Mitigation Analysis" is (mostly research projects?) And why such a large sum will be spent on these activities.

Answer. The Mitigation Analysis is the study/evaluation component of the Columbia River Fish Mitigation Project. It meets the National Marine Fisheries Service biological opinion requirements for investigating potential survival improvements at our projects. For example, the biological opinion measures that call upon the Corps to evaluate the feasibility of reservoir drawdown, dissolved gas abatement and surface bypass technology are being addressed through our Mitigation Analysis. The evaluation of these major structural changes to the projects will require gathering additional biological information, detailed engineering studies and technical/economic/environmental evaluations. Further, several of these activities, such as surface bypass, are "cutting edge" technologies that will require extensive modeling and full-scale prototype testing. As a result, the cost of these major mitigation analysis measures is significant. In fiscal year 1997, the Lower Snake River reservoir drawdown options is estimated to cost $8.5 million, the gas abatement study will cost $7.9 million and the surface bypass study will cost $40 million. Other mitigation analysis evaluations include evaluating means of improving survival of juvenile fish passing through turbines, investigation of adult fish passage improvements and development of alternative acoustic guidance technologies.

Question. Are many of the studies and other activities planned by the "Mitigation Analysis" required by the National Marine Fisheries Service's latest "Biological Opinion" for river operations?

Answer. All of the studies and other activities in the "Mitigation Analysis" are required by either the Reasonable and Prudent Alternative, the Incidental Take or the Conservation Measures in the National Marine Fisheries Service's latest biological opinion.

Question. Several weeks ago, there was a controversy surrounding a Corps decision to delay the installation of pit tag detectors at John Day Dam. I understand that the controversy has been resolved, and the activity is back on track. Could you please explain the nature of the controversy, and how it was finally resolved?

Answer. Construction of the facilities was planned around a budget of $78.8 million for the Columbia River Fish Mitigation Project. However, $6.5 million in savings and slippage was applied to the conference amount and the final work allowance is now $72.3 million. In late January the Corps concluded that the best option to accommodate the fiscal year 1996 funding shortfall was to reduce the allocation to the John Day pit tag facilities. The effect would delay completion of the facility from 1997 to 1998. While it was recognized that there were no good options to address the shortfall this option was preferable to impacting numerous other actions which are being carried out this year.

On January 31, 1996, the Northwest Power Planning Council passed a motion to use $6.0 million of Bonneville Power Administration (BPA) direct funds for construction of the pit tag facilities. The Corps and the BPA are currently developing a Memorandum of Agreement, in accordance with the provisions of Section 1146 of the Water Resources Development Act of 1986, whereby the BPA would provide $6.0 million during fiscal year 1996 to continue construction. This agreement is expected to be consummated by mid-April and thereby allow the project schedule to be maintained.

FISH AND WILDLIFE BUDGET FOR THE COLUMBIA RIVER BASIN

Question. Last fall, the Administration and Congress reached agreement on a fish and wildlife budget to the Columbia River Basin for the next five years. The agreement calls for an average of $435 million per year to be spent on fish and wildlife activities in the Basin funded by the Bonneville Power Administration. I understand that the Administration is currently in the process of negotiating a Memorandum of Agreement (MOA) on the details of the fiscal year 1996 program. Assuming that the Corps has been a party to the MOA discussions, please describe the nature of the negotiations, including areas where there is disagreement among the Federal agencies involved, and when you expect the MOA to be finalized.

Answer. The Corps has been a party to ongoing MOA discussions since they were initiated in November 1995. Initially, discussions were primarily educational in nature to ensure common understanding of the basis for the $435 million dollar "Fish and Wildlife Budget". Subsequent meetings and discussions have resulted in a number of issues that will require resolution by agency representatives. The issues requiring resolution included the following:

a. Is the "Fish and Wildlife Budget" $435 million annually, regardless of operational costs or is the "Fish and Wildlife Budget" $252 million plus operational costs?

b. What costs are included in the $435 Million "Fish and Wildlife Budget?" There are at least three different options under consideration.

c. Use of $325 million reserve. Is access to the reserve fund limited to criteria set forth in Director Rivlin's letter of 24 Oct 95, or is it possible to access the fund for other fish programs or issues not clearly delineated in the $435 million "Fish and Wildlife Budget".

d. Role of Northwest Power Planning Council in MOA.

Because the timeline for resolution of the above issues is uncertain and coordination and consultation with the Tribes is ongoing, a date for finalization of the MOA has not been established.

WILLAMETTE RIVER TEMPERATURE CONTROL

Question. I understand the Corps has requested $1 million for preconstruction, engineering and design under its General Investigations appropriation for continued work on temperature control modifications to the Cougar project on the McKenzie River in Oregon. While I appreciate the fact that the Corps has once again included funds in its budget for this important project, I am deeply concerned that the Corps has misled me with regard to both the timeline and the funding. First, let me refer you to the Statement of the Managers' language included in the Conference Report to the Fiscal Year 1993 Energy and Water Development Act (House Report 102–866). That language was included by the conferees after agreeing the Corps' own timeline for the project. The fiscal year 1993 conference language reads as follows:

> The conferees have reviewed the Corps of Engineers plan of action for conducting the feasibility study of temperature control measures at the Blue River and Cougar Dams in the McKenzie River drainage in Oregon. The conferees believe that the Corps should produce a feasibility report that fully analyzes and evaluates the alternatives and, therefore, concurs in the Corps' proposed time and cost estimate. The Corps is to provide sufficient funds during fiscal year 1993 from within available funds to meet the proposed completion date of April 1995.

Again, in the Senate Report to the fiscal year 1996 Energy and Water Development Bill (Senate Report 104–120), the Committee included the following direction:

> The Committee has provided $1,000,000, for the Corps to continue engineering, design, and preparation of details plans and specifications for water temperature control facilities at the Cougar project on the McKenzie River. Over the last 5 years, Congress has directed the Corps to expedite completion of the feasibility study and design for this important project. The Committee again directs the Corps to proceed without delay to com-

> plete preconstruction design in 1996 and to request construction funding in 1997 and to provide a report to the Committee no later than February 1996 on its activities and progress.

I know foot dragging when I see it, and this is clearly foot dragging. Please explain to the Subcommittee why this project continues to be delayed—where is the feasibility study and where is the progress report that was directed by this Committee to be completed last month?

Answer. The Corps is proceeding in accordance with the project schedule and costs approved in the Project Management Plan (PMP), dated April 1995.

In response to the language included in the Conference Report accompanying the Fiscal Year 1993 Energy and Water Development Appropriations Act (House Report 102–866), the Corps has produced a feasibility report that, "* * * fully analyzes and evaluates alternatives * * *". That report was completed in April 1995, in accordance with the study schedule and costs specified by the Conferees.

The approved schedule for follow-on work outlined in the PMP, including Pre-Construction Engineering and Design (PED) and development of the plans and specifications (P&S) for the Cougar Lake portion of the project with which the Conferees concurred in 1993, remains unchanged. That schedule includes the following milestone dates:

Begin Cougar Lake P&S	30 Sep 1996
Complete Cougar Lake P&S	24 Dec 1997
Begin Construction	30 Mar 1998

Language in the Senate Report accompanying the fiscal year 1996 Energy and Water Development Appropriations Bill (Senate Report 104–120) states the following: "The Committee again directs the Corps to proceed without delay to complete preconstruction design in 1996 * * *". For clarification, "preconstruction design" is "pre-construction engineering and design (PED)" and includes development of the feature design memorandum (FDM) and plans & specifications (P&S). Development of the FDM is on schedule and will be completed this year. Also, as shown above, P&S development will begin in September 1996 and will be completed in December 1997, as scheduled. The Senate Report goes on to say, "* * * and to request construction funding in 1997 * * *". If the intent of the Senate language was to direct the Corps to request a fiscal year 1997 new construction start rather than a fiscal year 1998 new start, as scheduled, then that was not clear and in fact, is not possible.

We regret this misunderstanding on project schedule and costs, and we believe that there has been no "foot dragging" by the Corps. We fully agree that this is an important project and we are proceeding on the agreed to 1993 schedule with necessary actions to make the project ready for a construction start in 1998. The progress report is being finalized for transmittal to the committees.

QUESTIONS SUBMITTED BY SENATOR GORTON

LAKE WASHINGTON SHIP CANAL (BALLARD LOCKS), WA

Question. Recently, the National Marine Fisheries Service made the decision—after nearly 3 years of deliberations—to allow for the lethal removal of sea lions that prey upon dwindling steelhead runs at the Ballard Locks. I was the author of the amendment to the Marine Mammal Protection Act that authorized the removal of these predatory sea lions, and strongly support the actions of the NMFS to finally get about the business of removing the predatory sea lions.

But more to the point for your agency, I was given a copy of a letter from the Washington State Department of Fish and Wildlife to Colonel Wynn on the subject of structural improvements to the Ballard Locks. I understand that the Corps has the lead responsibility for the Lake Washington Ship Canal project—the Ballard Locks—and wanted the Corps to provide for me an analysis of the structural improvements to the Locks that might better aid fish passage. Specifically, are there any modifications that could or should be made to the Locks, that would benefit fish passage, while not hampering transportation and other uses of the Locks? If so what would be the costs of such modifications, and are they included in your fiscal year 1997 budget?

Answer. The Washington Department of Fish and Wildlife letter to Colonel Wynn mentions an Interagency Fish Passage Work Group. This group of resource agency fish passage engineers and biologists has recommended that:

—Replacement of the existing fish ladder's control system should be made. This feature was funded in fiscal year 1995 and 1996 and will be complete in June 1996.

—Installation of smolt chutes across the dam's spillway for downstream surface passage of outmigrating juveniles should be made. $75,000 for preliminary engineering is included in the fiscal year 1997 Corps O&M budget. A preliminary estimate for completion of design and construction of this work is in the range of $1,500,000 to $2,000,000 which is not included in the fiscal year 1997 Corps budget.

—Replacement of the existing fish ladder's entrance gate with an adjustable weir to better attract returning adults could be made. A preliminary estimate for design and construction of entrance modifications is about $1,000,000 which is not included in the fiscal year 1997 Corps budget.

For work beyond fiscal year 1997, the budget for the recommendations of the Interagency Fish Passage Work Group have not yet been reviewed by higher levels within the Corps.

—The Interagency Fish Passage Work Group has recommended that experimental designs for sea lion barriers and/or steelhead refuge should not be adopted for fear of the potential harmful effects on what is left of the wild steelhead run. A hydroacoustic barrier system is in existence at the Locks and is being operated successfully by NMFS against naive (newcomer) sea lions.

JOHN DAY RESERVOIR DRAWDOWN

Question. In the Fiscal Year 1996 Energy and Water Appropriations Act $1.0 million was appropriated from Columbia river Juvenile fish Mitigation program for "advanced planning and design for public and private facilities affected by the operation of the John Day project at minimum pool levels" the Committee report also specified that no further funding of the drawdown proposal could be spent unless specifically authorized by Congress.

Shortly after the enactment of the Energy and Water bill, Congressman Hastings and I asked the Corps in a letter to reprogram the $1.0 million dedicated to the John Day for other purposes. Have you spent the $1.0 million on John Day drawdown related activities, or have you reprogrammed the money elsewhere?

Answer. Approximately $300k is being used to close out on-going work for Minimum Operating Pool implementation. The balance of funds has been reprogrammed to other measures in the Columbia River Fish Mitigation project.

Question. What is the status of the drawdown proposal?

Answer. All drawdown planning, engineering and implementation actions related to drawdown are presently deferred pending development of "scientific justification of the project as an effective means of salmon recovery" requested by the conference committee report on the Fiscal Year 1996 Energy and Water Development Appropriations Act. The Corps has recommended to NMFS that they assume the lead role in developing the scientific justification. NMFS has replied that it is "reviewing the benefits to John Day reservoir drawdown in the context of the March 5, 1995, Federal Columbia River Power System Biological Opinion" and will provide this review by spring 1996.

Question. Is there funding in your fiscal year 1997 budget for the John Day drawdown project?

Answer. No, the President's fiscal year 1997 budget does not include funds for work on John Day drawdown. No further work on this measure is planned pending scientific justification.

OPERATION AND MAINTENANCE OF COLUMBIA AND SNAKE RIVER PROJECTS

Question. I understand that appropriations for operations and maintenance of Corps dams on the Columbia and Snake are directly appropriated through the Energy and Water appropriations bill, but the Bonneville Power Administration (BPA), in turn, reimburses the federal Treasury for those costs.

I believe that the people of the Northwest region must have greater control over fish and wildlife related decisions on the Columbia and Snake river system. As part of that goal, we should have a better understanding of how much the region is spending for the operations and maintenance of federal facilities that provide power and other important benefits—flood control, transportation, irrigation, recreation, etc.—to the region. If BPA essentially funds the annual operations and maintenance of the Corps dams on the Columbia and Snake River system, then it makes sense to this Senator that it should fund these activities directly, as opposed to repaying the Treasury.

If BPA were to directly fund the operations and maintenance costs from its accounts, would those funds still "score" against the agencies appropriated accounts? I understand that this issue is currently pending review at the Office of Management and Budget. Could you please provide for the record information on whether or not there is a hold up at OMB on this issue, and if so, the problem OMB has with the direct funding proposal?

This question should also be directed toward the subcommittee—if BPA were to directly pay for the operations and maintenance of Corps facilities that produce power, would that funding score against the subcommittee's bill?

Answer. Under Section 2406 of the National Energy Policy Act of 1992, the Corps is allowed to accept direct funding for hydropower expenses. To date, the amount that has been direct funded—$6 million—has not been "scored" against the Civil Works Operation and Maintenance, General, appropriation. However, we have no formal agreement with the Office of Management and Budget that O&M funds will not be offset by this amount if the Bonneville Power Administration significantly increases the amount of direct funding.

POWER OUTPUT EFFICIENCY FROM CORPS DAMS

Question. Has the Corps identified power output deficiencies at its federal facilities on the Columbia and Snake river system?

Answer. Yes, we have a detailed analysis. The Corps has an ongoing program of major rehabilitation of older projects. Since 1992, we have spent $64.1 million to rehabilitate hydropower units on the Columbia and Snake River system. The fiscal year 1997 budget proposes to initiate one new hydropower major rehabilitation project (The Dalles Powerhouse) at a total Federal cost of $86 million.

Question. What are the causes, i.e. outdated equipment, operations and maintenance needs, lack of equipment upgrades, fish related power output reduction? Are some projects operating at less than maximum capacity for prolonged periods of time? How long? Which projects?

Answer. The causes are that some generating units on the Columbia and Snake Rivers have damaged or otherwise limited components which restrict the power output production thereby reducing its efficiency. Some units have failed in service and are waiting repair, replacement, or rehabilitation. Others physically have the full capacity available to them but are restricted in their power production operation for reasons of fish passage. Provided for the record are the following two charts, one for units which are derated and the other for units which are forced out of service due to equipment failures.

[The information follows:]

NORTH PACIFIC DIVISION—COLUMBIA AND SNAKE RIVERS—GENERATORS WHICH HAVE BEEN DERATED

Project	Unit No.	MW derated	Derated date	Reason
The Dalles	3	13	8/8/96	Damaged generator winding.
The Dalles	4	20	3/7/96	Damaged generator winding.
The Dalles	6	13	....	Damaged generator winding.
The Dalles	8	13	....	Damaged generator winding.
The Dalles	10	13	....	Damaged generator winding.
The Dalles	15	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	16	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	17	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	18	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	19	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	21	10	mid 1994	Incipient component failures in generator excitor.
The Dalles	22	10	mid 1994	Incipient component failures in generator excitor.
Total MW's lost	....	152		

NORTH PACIFIC DIVISION—COLUMBIA AND SNAKE RIVERS—GENERATORS WHICH HAVE BEEN FORCED OUT OF SERVICE

Project	Unite No.	MW lost	Date out	Date in	Reason
Ice Harbor	2	90	3/13/94	5/1/96	Turbine blade crack repair.
Ice Harbor	5	111	5/15/94	4/23/96	Generator winding failure.
McNary	2	70	3/8/96	4/16/96	Generator winding failure.
The Dalles	7	78	4/25/93	1/1/97	Generator winding failure.
The Dalles	9	78	7/15/96	12/15/96	Generator winding failure.
The Dalles	11	78	2/6/95	7/30/97	Generator winding failure.
The Dalles	17	86	12/11/95	4/11/96	Turbine oil leak.
The Dalles	18	86	2/6/96	8/15/96	Thrust bearing problems.
The Dalles	19	86	2/6/96	8/15/96	Thrust bearing problems.
Bonneville	4	54	2/17/94	12/31/97	Generator excitor failure.
Bonneville	6	54	12/12/94	2/12/98	Generator winding failure.
Total MW's lost	....	781			

Some of these generating units are returned to service at less than full/original capacity as opposed to being fully repaired and restored to original power production capacity. In general, the low cost of an interim repair, with its associated reduced power-producing capacity and deferment of the high cost of full restoration to some later date, has been more economically prudent than immediately incurring the high cost of a full restoration of the generating unit's capacity.

Forced outages occur for a variety of reasons. Electrical-mechanical generating equipment has a useful life which is effected by the condition of its components. As equipment ages; is utilized in a stressing manner; or is precluded from timely component repair, replacement, or rehabilitation; it becomes prone to failures. Units in the North Pacific Division experience forced outages from time to time for all the above normal reasons.

Also during the fish passage season, certain generating units are restricted to operating their hydraulic turbines within 1 percent of the hydraulic turbine's peak efficiency at the operating hydraulic head. At this point, the turbine is capable of producing more power but to do so would take the hydraulic efficiency outside the 1 percent limit. The difference between maximum capability the turbine can produce and the turbine's capability constrained when constrained to 1 percent could be viewed as an operational power deficiency. I will provide for the record a chart of the projects and units effected and the duration of the impact.

[The information follows:]

NORTH PACIFIC DIVISION—COLUMBIA AND SNAKE RIVERS—GENERATORS WHICH HAVE REDUCED CAPACITY DUE TO 1 PERCENT LIMITATION

Project	Units	Fish season	Lost MW
Lower Granite	1–3	Mar 15–Dec 15	
	4–6		39
Little Goose	1–3	Mar 1–Nov 30	
	4–6		18
Lower Monumental	1–3	Mar 1–Nov 30	
	4–6		39
Ice Harbor	1–3	Mar 15–Nov 30	12
	4–6		3
McNary	1–14	Mar 1–Nov 30	140
John Day	1–16	Mar 15–Oct 31	352
The Dalles	1–14	Mar 15–Oct 31	70
	15–22		64
Bonneville 1	1–10	Mar 15–Oct 31	170
Bonneville 2	11–18	Mar 15–Oct 31	32
Total lost Megawatt capacity			939

Another item that will effect power generation is called pool drawdown. Certain projects are required to lower the level of their normal operating reservoir pool. This results in a smaller hydraulic head available for the generating units which in turn results in reduced maximum turbine capacity. Provided for the record is a chart of projects and units effected, the duration of the reduction, and the amount of reduced capacity.

[The information follows:]

NORTH PACIFIC DIVISION—COLUMBIA AND SNAKE RIVERS—GENERATORS WHICH HAVE REDUCED CAPACITY DUE TO DRAWDOWN

Project	Units	Fish season	Total MW
Lower Granite	1–3	Mar 15–Dec 15	30
	4–6		75
Little Goose	1–3	Mar 15–Nov 30	30
	4–6		54
Lower Monumental	1–3	Mar 1–Nov 30	30
	4–6		75

NORTH PACIFIC DIVISION—COLUMBIA AND SNAKE RIVERS—GENERATORS WHICH HAVE REDUCED CAPACITY DUE TO DRAWDOWN—Continued

Project	Units	Fish season	Total MW
Ice Harbor	1–3	Mar 15–Nov 30	21
	4–6		6
McNary	1–14	Mar 1–Nov 30	140
John Day	1–16	Mar 15–Oct 31	496
The Dalles	1–14	Mar 15–Oct 31	70
	15–22		64
Bonneville 1	1–10	Mar 15–Oct 31	170
Bonneville 2	11–18	Mar 15–Oct 31	32
Total lost Megawatt capacity			32

Note: The hour by hour capacities vary head (differences between Pools above and below) changes. These head changes occur due to flow and other pool level fluxuations. These data are a representative average.

To restore lost power efficiency at North Pacific Division facilities on the Columbia and Snake Rivers, for those units that are operated in a derated condition, a generator rewind would be necessary. For those units which are forced out of service due to equipment failure, a repair, replacement, or rehabilitation would be necessary. Correction of hydropower deficiencies compete with ongoing and new requirements in the budget process.

For those units with operating constraints, the constraints would have to be removed or mitigated or equipment modified to restore lost efficiencies. We are evaluating new turbine designs that may provide improved power capacity at increased turbine efficiencies which would effectively mitigate the operating constraint while possibly increasing the survival of juvenile fish that pass through the turbines.

Question. What modifications, improvements, changes in management practices, are needed in order to increase power output?

Answer. There are opportunities to upgrade or otherwise improve power efficiencies at North Pacific Division facilities on the Columbia and Snake Rivers. The possibilities range from new more efficient turbine runners to rewinding older design generators. I will provide for the record a chart of potential sites.

[The information follows:]

North Pacific Division—Columbia and Snake Rivers—Opportunities to Improve Power Output

Project	*Description*
The Dalles	Modify Rehab Program to include new fish friendly runners.
McNary	Major rehabilitation.
Chief Joseph	Replace runners 1–16.
Bonneville attraction water	Convert the station service unit 0 to supply fish.
Lower Granite, Little Goose, Lower Monumental, Ice Harbor, McNary, and John Day	Replace fish pumps with fish attraction units.
McNary	Construct second powerhouse.
John Day	Add units 17–20.
Lower Granite	Runner replacement.
Little Goose	Runner replacement.
Lower Monumental	Runner replacement.
Ice Harbor	Runner replacement.
John Day	Runner replacement.
The Dalles	15–22 Runner replacement.
Bonneville 2	Runner replacement.

OAK HARBOR, WA

Question. The Saratoga Passage, the channel leading into Oak Harbor, Washington, was dredged to depths of 10 to 30 feet in 1972. In 1986, the Corps considered participating in a study which would have allowed for additional dredging at Oak Harbor. But because of requirements mandating a 50 percent commercial participation in similar Corps projects, the Corps was forced to back out. Over the many years since this channel was last dredged, siltation and shoaling have occurred. Today, community leaders are searching for a solution. I have two questions.

Does the Corps need specific authorization to proceed with dredging the Saratoga Passage?

Answer. Yes, since the Corps has no authority to dredge the Saratoga Passage.

Question. I understand that Section 107 of the 1960 Rivers and Harbors Act allows the Secretary of the Army to allocate funds for planning, design, construction, and maintenance of small navigation projects when it is found that such work is advisable. Does the Oak Harbor channel qualify?

Answer. Yes. The Section 107 authority could be used to study possible dredging of Saratoga Passage to determine if there is a Federal interest in participating in such a project. However, Section 107 requires local cost sharing for study and construction costs. Moreover, the Administration has proposed to phase out Federal participation in small navigation projects where commercial shippers do not pay the ad valorem tax for the cargo handled, unless the harbor meets the definition of a subsistence harbor, providing the only reliable mode of transporting goods into and out of the community, or the harbor is primarily a commercial fishing harbor on which the community is substantially dependent.

Question Submitted by Senator Bennett

UPPER JORDAN RIVER

Question. I have a question regarding the Upper Jordan River project in Salt Lake County, Utah. This project, which was authorized by Congress in the 1990 Water Resources Development Act, will provide flood control protection to residents in the Salt Lake area near Mill Creek. The Fiscal 1996 Energy and Water Appropriations Act included $450,000 for planning purposes. My understanding is that based on the latest Army Corps design memorandum for the project, approximately $1.1 million is needed in Fiscal 1997 Energy and Water Appropriations to complete planning and begin construction on the project, yet funding was not included in the Corps' budget request sent to Congress last week, even though new starts were included.

I would like to know why this funding was not included in the Corps Fiscal 1997 budget, particularly since funding has been requested for new start projects. I am aware that the project needs a Section 902 reauthorization, since the original authorization amount of $7.9 million has increased by more than 20 percent to a level of $12.87 million. However, it is my understanding that at least two other Corps flood control projects were included in the budget request as new starts that need Section 902 reauthorization—the Saw Mill Run project in Pittsburgh, Pennsylvania and the Chicago Shoreline project in Illinois.

Answer. In order to maintain a viable investment program in water resources infrastructure in fiscal year 1997 and projected future years, and to demonstrate the Administration's commitment to proposed new policies, the Army did include new construction start recommendations this year. Some are contingent on Congressional authorization or reauthorization which is being proposed as part of the Army's legislative program for 1996. Unfortunately, we could not include every new start recommendation in the budget and still comply with Federal budget reduction goals. We are hopeful that budget targets will allow us to consider the Upper Jordan River project next year as a new construction start.

Questions Submitted by Senator Johnston

Question. In response to the severe budgetary situation, the 1996 Energy and Water Development Appropriations Act provided an amount $11,365,000 below the President's fiscal year 1996 budget request for the MR&T project. The conferees agreed that the reductions made to the individual features within the project were made without prejudice and the Corps of Engineers was expected to manage the project, including reprogramming of funds where necessary, to derive the maximum benefit from the funds provided. However, we understand there are a number of critical contracts ready for award that are being delayed due to funding shortages. What has created this situation?

Answer. We appreciate the flexibility Congress provided us to manage the MR&T project. As a result, we have prioritized our work and are doing our higher priority work first. This has resulted in placing some of our scheduled third and fourth quarter construction contracts on hold pending identification of funding sources. The contracts will be awarded in priority order as funds become available. This may result in some or all of the contracts being deferred until fiscal year 1997. We have notified our local sponsors, so they are aware of our plans.

We would like to acknowledge that the major portion of the funding shortage that we have in fiscal year 1996 was caused by our efforts in fiscal year 1995 to fully utilize all of our available funds by moving project work forward into fiscal year 1995 from the out years. This was a calculated move aimed towards advancing work on projects and improving our service to our customers. We were successful in the accomplishment of this goal and utilized 98 percent of available funds. However. this accomplishment was not without a price. Many of the contracts that were advanced into fiscal year 1995 had to be continued in fiscal year 1996 and it is the funding requirement to continue these contracts that makes it necessary to defer award of contracts in fiscal year 1996. We estimate that we will have to defer 38 contracts having a total estimated value of $52.3 million and fiscal year 1996 earning requirement of $6.6 million to stay within our currently available funds.

Question. Last year you indicated that the completion date for the MR&T project would be delayed to the year 2020. Is this still your scheduled completion date for the overall project? If not, please explain.

Answer. Our presently estimated completion date for the MR&T project is the year 2029 which represents a delay of 9 years from our completion date of 2020 presented last year. This delay in project completion is the result of reduced funding in fiscal year 1997 and the out years.

Question. Does the amount you are requesting for the MR&T project in fiscal year 1997 permit orderly progress toward completion in 2020?

Answer. No, it does not.

Question. What are the potential impacts from delays in completion of the project?

Answer. Delaying completion of the MR&T project due to funding will delay realization of many of the significant project benefits, whether flood control, navigation, environmental, or economic development. The MR&T project is approximately 85 percent physically complete. We have progressed toward completion at a pace consistent with the non-funding constraints that we have encountered over the years, including availability of rights-of-way, especially for levee construction; and environmental considerations, including state water quality certifications. Any funding constraints will simply add delays.

The project has effectively protected the Lower Mississippi Valley from floods that are of a lesser magnitude than the project design flood, while providing navigation benefits and enhancing regional economic development. However, we remain concerned that there are various areas at flood risk, because of delays in performing work required to remedy serious deficiencies in levee grades and sections and completion of many miles of uncompleted levees and channel improvements exist. This work must be constructed before we can safely pass the project design flows and realize full project benefits.

Delays will also impact water borne navigation. In addition to the value of the MR&T project for flood control, the project provides considerable value to the Lower Valley and to the nation in navigation benefits. The Mississippi River serves as the main stem of a 12,350 mile inland navigable waterway system. Waterborne commerce on the Mississippi River from Minnesota to the Gulf of Mexico has experienced tremendous growth from 30 million tons in 1940 to 497 million tons in 1994. Approximately 56 percent of the grain exported from the United Sates travels down the Mississippi River and through the ports in the Lower Valley. The Mississippi River navigation facilities and ports are used for foreign and domestic imports, exports and transshipment of raw material and manufactured goods. Four of these ports are within the top ten in the nation in terms of tonnage. These ports and their rankings are South Louisiana, Louisiana-first; Baton Rouge, Louisiana-fourth; New Orleans, Louisiana-seventh; and Plaquemines, Louisiana-eighth. The impact of the budget reductions in maintaining the growth of the regional and national economy will be felt in reduced channel stability, less reliable navigation depths in channels and harbors and less returns from savings in dredging requirements from construction of stone dikes.

Delays will also impact full realization of benefits from some of our environmental work. Two examples of our projects that make environmental contributions are the Mississippi Delta Region, Louisiana, and Mississippi-Louisiana Estuarine areas, Mississippi and Louisiana, freshwater diversion projects which will divert water from the Mississippi River to prevent loss of wetlands and to increase fish and wildlife productivity. It is estimated that these two projects will benefit close to a million acres of nationally significant marshes, bays and wooded swamps. The Atchafalaya Basin Floodway System, Louisiana, project provides for the acquisition of real estate interests in the lower Atchafalaya Floodway for flood control, environmental protection and public access. Other projects such as the Yazoo Basin, Mississippi, provide for the acquisition and development of lands for fish and wildlife mitigation for project construction.

The contributions of the MR&T project to the economic development of the Lower Mississippi River Valley area and to the nation are indisputable. The project's major benefits are for flood control and navigation. If we were to take the 1973 flood as an example of a recent major flood, but certainly not of the magnitude of the project design flood, the MR&T project prevented the inundation of 19.8 million acres and $10.6 billion in damages in 1973 dollars. Expressed in current dollars, the damages prevented would amount to $37.9 billion. It should be noted that at the time of the 1973 flood, the project was less than 50 percent physically complete. Since the 1973 flood, the investments and population in the Lower Valley have increased.

Questions Submitted by Senator Byrd

FLOODING FROM WINTER OF 1996 STORMS

Question. Mr. Secretary, the storms of the winter of 1996 brought considerable damage to many communities across the country. In West Virginia, waters rose to levels nearly as high as those recorded in the historic floods in 1985. How would you rate the effectiveness of the flood control measures in place in West Virginia in responding to the rapid flooding that occurred in January?

Answer. Corps flood control projects in West Virginia were extremely effective in controlling flooding and effecting dramatic reductions in damages. Bluestone, Summersville and Sutton Lakes combined to reduce the Kanawha River stage at Charleston by about 15 feet, preventing over 500 million dollars in damages. Tygart and Stonewall Jackson Lakes were instrumental in protecting communities in the upper Monongahela valley.

Flood damages were significant in the Cheat River Basin. There are no Corps projects on the Cheat River. Tucker and Preston Counties experienced a 95-year frequency flood event. Flooding along the Greenbrier River in southern West Virginia approached the magnitude of the November 1985 flood, which was a 500 year event.

Question. What is the Corps' estimate of "damages prevented" as a result of existing flood control measures in West Virginia?

Answer. Total damages prevented by Corps projects are estimated at $587 million.

Question. What steps are being taken by the Corps in response to the damages that occurred in communities unprotected by flood control measures?

Answer. The Corps was already looking at flood protection possibilities in the Cheat, Tygart and Greenbrier River basins. Reconnaissance studies have been completed for the Cheat and Tygart River basins; however, these reports have not been approved. The reconnaissance report for the Cheat River Basin recommends a feasibility study for Parsons, West Virginia, and additional reconnaissance efforts for Rowlesburg and Camp Dawson. The reconnaissance report for the Tygart River Basin recommends a feasibility study for Belington, West Virginia. In the Greenbrier River Basin, a feasibility study that has been suspended for a number of years could be resumed, provided that a cost sharing sponsor is identified.

Question. Under current cost-sharing requirements, what is the likelihood that the communities affected by this year's floods will be able to pursue further flood protection?

Answer. Although the affected communities are deeply interested in flood protection measures, it is my understanding that, based on the Corps past experience, it is doubtful that they all have the financial capability to meet the cost sharing requirements unless they are afforded some relief under the "ability to pay" rules. We expect at least some to qualify for a reduced construction cost share in accordance with current ability to pay rules.

GREENBRIER RIVER

Question. The Corps of Engineers is in the process of completing an evaluation report about possible flood control protection for the Greenbrier River. The town of Marlinton, West Virginia, suffered considerable damage this winter. Opinion about a flood control project in this area remains divided among some of my constituents.

What is the current schedule for completion of the evaluation report? Will this assessment take into account data and other information from this past winter's floods?

Answer. The report will be completed in April, 1996, and will recommend whether there is a Federal interest in project development and whether there is a non-Federal sponsor willing to cost share remaining feasibility-level efforts. If feasibility level efforts are resumed, they would include an update of the hydrology of the basin to take the recent flooding into account.

Question. Does the Corps have the necessary funding to complete the update, or will a reprogramming be necessary?

Answer. The update would be part of the prospective feasibility level efforts. The Corps' reprogramming authority for fiscal year 1996 was exhausted by the reprogramming action that funded the report that is in preparation. The Army would consider seeking additional reprogramming authority from the Appropriations Committees to resume feasibility level efforts if the Corps ascertains that there is a Federal interest in project development and that there is a willing feasibility cost sharing sponsor.

Question. Is the report looking at various alternatives, and will a preferred recommendation be proposed?

Answer. The alternatives range from a dam and reservoir to conventional nonstructural flood control plans to a river corridor management plan. The report that is in preparation will not recommend an alternative; however, it will recommend whether further Federal participation in feasibility study efforts is warranted.

Question. What findings would be necessary in order for the Corps to pursue further consideration of flood control protection for the Greenbrier River?

Answer. The Corps would need to ascertain that there is a Federal interest in project development and that there is a willing feasibility cost sharing sponsor. The Federal interest is largely dependent on the benefit-cost ratio being at least 1 to 1.

Question. If the Corps determines that there is a Federal interest, what would be the next step? Would the various alternatives continue to be pursued, or would the Corps narrow its focus?

Answer. If there is a Federal interest in project development and a feasibility cost sharing sponsor is found, feasibility study efforts would reevaluate basin hydrology based on changed conditions, reevaluate the previously identified alternatives, and recommend a plan for implementation.

Question. To what extent does the Corps consider the degree of community support, or conversely, the lack of consensus, in deciding whether to recommend proceeding to the next study phase?

Answer. If there is sufficient community support to bring forth a feasibility cost sharing sponsor, then the Corps would proceed if funds were available.

Question. What are the costs associated with conducting the next phase?

Answer. The remaining costs to complete the feasibility study efforts would be $500,000.

Question. Would non-Federal cost share be necessary for the feasibility study, or is a waiver of this requirement possible?

Answer. Since this effort is considered to be a resumption, cost sharing by a non-Federal sponsor is required. The Federal share and the non-Federal share each would be $250,000.

Question. Does the Corps have any cost estimate, or a range of possible cost estimates, for the various alternatives?

Answer. The latest estimates for the options range from $80 to $108 million. The estimates must be updated to reflect price level changes.

Question. If a project were to be selected, what would be the cost-sharing requirements for construction?

Answer. Under the Administration's proposed cost sharing, a non-Federal sponsor would pay 50 percent of the costs of structural features, subject to ability to pay. The sponsor would pay 25 percent of the costs of non-structural features, subject to ability to pay. Existing law for non-structural measures would not be changed.

Question. Are there any steps that could be taken in the more immediate future to provide greater ability to the residents of the area to prepare for and respond to flooding?

Answer. One possibility is an early flood warning system, if authorized and funded. Estimated total cost for this is $500,000, and it would take about 18 months to install.

Question. To what extent has the Corps participated in the funding and installation of such early warning systems at other locations? Is there a cost-sharing requirement for this low-cost alternative?

Answer. Early warning systems have been components of projects elsewhere. They are cost shared as non-structural flood control features, 75 percent Federal and 25 percent non-Federal.

PROPOSED CHANGE IN COST SHARING POLICY

Question. The fiscal year 1997 budget again proposes to shift responsibility for flood control projects to the States and local communities by recommending increased cost-sharing requirements. Last year's 75 percent local/25 percent Federal proposal has been replaced by a 50/50 proposal. Will this proposed policy affect projects in process, or just proposed new starts? What will be the affect on projects that have multiple phases?

Answer. In our budget proposal, we have recommended certain projects, specifically the recommended new construction starts, as candidates to be subject to these new cost sharing percentages. I have personally written to representatives of the local cooperating agencies for these 10 flood control projects, and offered them an explanation of the new proposal. In actual practice, I assume the necessary legislation will contain an effective date for implementation. I understand that this is how it was done both in the Water Resources Development Act of 1986, and in the Supplemental Appropriations Act of 1985.

Question. What will be the effect on projects in West Virginia, particularly those components of the Tug Fork project which are not yet completed?

Answer. It appears that no elements of the Tug Fork project in West Virginia will be affected by the new policy. Those elements which presently have signed agreements for construction with local sponsors would retain the cost sharing included in those agreements. New start separable elements which do not have signed agreements for construction as of the effective date of the new cost sharing rules would only be affected if the present ability to pay rules were changed. At present, we do not have any plans to revisit the ability to pay rules. If the existing rules are not changed, sponsors for elements of the Tug Fork project in West Virginia, all of which appear to qualify for ability to pay reductions at this time, will pay the same share under the proposed cost sharing as they do under current cost sharing.

Question. Last year, the proposed change in cost-sharing requirements was soundly denounced by the Committee. Why does the Administration believe its fiscal year 1997 policy will be any better received or that the communities suddenly have a greater ability to pay?

Answer. We believe the fiscal year 1997 policy will be better received because many more communities will be eligible for a cost shared project than would have been under the prior proposal. Moreover, the underlying reason for the proposed policy has not changed. It is unlikely that sufficient Federal funds will be available in the future to continue the prior level of Corps participation in this area while reducing the Federal deficit. The Army's budget reflects the importance we place on being able to help more communities within funding constraints. Our efforts are reflected in proposed changes to cost sharing. The proposed new projects are, in fact, investments in America's future.

MARMET LOCK AND DAM

Question. The Corps is in the process of initiating a major lock replacement program at Marmet Lock and Dam along the Kanawha River. Congress has appropriated funds for preconstruction engineering and design, and the Corps has been proceeding accordingly. I understand, however, that inaction by the Congress on the Omnibus Water Resources Development Act may impede further progress on this project. What is the normal process for similar replacement projects? What activities does the Corps have generic authority to conduct absent a new authorization?

Answer. Once a feasibility study is complete, the Corps will initiate preconstruction planning, engineering, and design activities, if there is widespread support for project and if Federal participation is justified. Land acquisition and construction would require Congressional authorization to proceed.

Question. Has Marmet been subjected to the normal feasibility evaluation and review process? How did Marmet fare in the benefit to cost analysis?

Answer. Yes. Marmet was subjected to the normal feasibility evaluation and review process. The benefit to cost ratio is 2.8 to 1 with economic benefits estimated at $33 million annually.

Question. With respect to Marmet, what has the Corps done with funds appropriated to date?

Answer. The Marmet feasibility report was approved in August 1994 and preconstruction engineering and design was initiated in fiscal year 1994. Ongoing preconstruction engineering and design efforts include work on design memorandums for geology, foundations, lock design and real estate. Preparation of plans and specifications for phase one construction, consisting of the resident engineer's office, floating mooring buoys and partial anchoring of the existing landwall is also in progress.

Question. Are there additional PED activities that need to be completed? What are they, and are the fiscal year 1997 proposed funds sufficient to complete this work?

Answer. Proposed fiscal year 1997 funds are sufficient to complete preconstruction engineering and design, consisting of the lock design memorandum, including the quality control and assurance process, plus foundation, geology and real estate memorandums and the phase one plans and specifications.

Question. What activities is the Corps prepared to proceed with, but cannot due to lack of a comprehensive authorization for Marmet replacement?

Answer. Authorization is required before the Corps can acquire real estate, perform relocations, or construct the project. Whether or not the Corps is prepared to proceed on these also will depend on overall funding constraints and competing priorities nationwide.

Question. Could these limited activities be conducted in fiscal year 1997 if the necessary authorities and funding were provided?

Answer. Yes.

Question. What is the Corps' estimate of land acquisition that could be conducted in fiscal year 1997 if authorization is provided? Are these funds included in the budget?

Answer. In fiscal year 1997, if authorization and funding were provided, $2.6 million could be used to begin land acquisition. No funds for real estate activities are included in the budget request. Moreover, no official capability has been expressed because these activities are not authorized yet.

Question. How many properties will need to be acquired at Marmet?

Answer. A total of 216 tracts of land will be needed for the additional lock and the material disposal and mitigation areas. The 216 tracts include 179 residential, 9 commercial and 28 vacant properties.

Question. In general, with respect to the real estate activities that need to be conducted, is there local objection to what the Corps is proposing?

Answer. No. In fact, the uncertainty of the situation is creating hardships as people wait for their properties to be purchased by the Corps. This is a very significant issue to the people within the project acquisition limits.

Question. What is the current schedule for conducting the activities necessary prior to initiating construction? How is this schedule being affected by the authorization problem?

Answer. Real estate acquisition and relocations will take four years. Delay in initiating these activities will affect the overall schedule and slip it on a year-to-year basis.

Question. If the schedule is delayed much further, what will this do to the project cost estimate?

Answer. Delays usually translate into higher costs due to price level increases.

Question. If the funds requested in the fiscal year 1997 budget are approved, would this complete the necessary pre-construction engineering and design for Marmet?

Answer. Yes, fiscal year 1997 funds will complete preconstruction engineering and design.

Question. If so, does this mean that work comes to an end at Marmet at the end of the fiscal year 1997 if the authorization issue is not settled?

Answer. Additional design could be performed, but real estate acquisition, relocations, and construction require authorization.

MOOREFIELD FLOOD PROTECTION

Question. In 1990, Congress authorized construction of a flood control protection project in Moorefield, West Virginia. This area suffered considerable damage as a result of flooding in November, 1985, and the community has been working to improve its flood protection ever since.

The Corps awarded the construction contract for the Federal component (earthen levee) earlier this year, and construction is scheduled for completion in February, 1998. The budget for fiscal year 1997 includes $6,385,000 to keep this aspect of the Moorefield project on schedule.

What is the current cost estimate for the Moorefield project?

Answer. The current total cost estimate for the Moorefield project is $23,200,000, based on October 1995 price levels, escalated for inflation to the mid-point of construction.

Question. How does the current total cost estimate compare to the cap established by the 1994 project cooperation agreement?

Answer. The section 902 maximum project cost estimate in the Project Cooperation Agreement executed in May 1994 was $22,800,000, based on November 1993 price levels, escalated for inflation to the mid-point of construction. The current section 902 maximum project cost estimate is $22,351,000, based on October 1995 price levels, escalated for inflation to the mid-point of construction.

Question. Given that Moorefield is up against its cost cap, what does this do to the project schedule? Are delays likely if the cap is not raised?

Answer. Although the current project cost estimate exceeds the current section 902 maximum project cost limit by $849,000, the implementation schedule for the Federally constructed portion of the project will not be affected. However, the non-Federally constructed portion of the project, namely, the U.S. Route 220 bridge relocation and the railroad bridge modifications, would suffer delays in construction initiation until the project is reauthorized. We are working with the State to determine if a phased construction contract is viable to permit initiation of their construction work such that the maximum project cost would not be exceeded until after the Moorefield project is reauthorized at the higher cost.

Question. What factors have contributed to Moorefield running up against its cost cap? Has the scope of the project changed at all?

Answer. The scope of the Moorefield project has not changed. The project has experienced increases in estimated total project costs based on higher actual real estate acquisition and construction costs than had been estimated originally.

Question. Has the Corps exhausted all possible administrative remedies to address the situation at Moorefield? If so, is a legislative solution the only remedy if the project is to proceed as designed?

Answer. The Corps has exhausted all possible administrative remedies to address the experienced increases in total project costs, including use of the section 902, Water Resources Development Act of 1986 authority, which permits administrative increases from the originally authorized $16,260,000 project cost. A legislative solution is the only remedy to permit the Moorefield project to be fully implemented within the scheduled project completion date.

TUG FORK PROJECTS

Question. Last year, Congress provided $5.610 million for ongoing activities in the West Virginia areas that are part of the Levisa/Tug Fork flood protection program. This year's budget includes funding for ongoing work at Matewan, and studies in McDowell and Wayne counties. But no funds are included for ongoing flood protection actions underway in Hatfield Bottom and Upper and Lower Mingo County. Why are no funds included in the budget for the Hatfield Bottom and Lower and Upper Mingo County components of the Tug Fork project?

Answer. The Administration has not supported these projects because they are not economically justified.

Question. Is it not correct that Upper and Lower Mingo County have identified the necessary cost-sharing to comply with their particular authorizing requirement?

Answer. This is correct.

Question. What funding is necessary in fiscal year 1997 to keep these projects on schedule?

Answer. The capabilities are $4 million for Upper Mingo, $4.2 million for Lower Mingo, and $1.6 million for Hatfield Bottom. Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower army-wide. In this context, these capability amounts consider each project or study by itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works program in the President's budget is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that Government borrowing is having on the national economy. In addition, the total amount proposed for the Army's Civil Works program in the President's budget is the maximum that can be effectively and efficiently used. Therefore, while we could utilize additional funds on individual projects and studies, offsetting reductions would be required in order to maintain overall budgetary objectives. In addition, the Administration's review of the Levisa/Tug Fork project has identified economic and/or policy concerns.

CHEAT RIVER BASIN

Question. Similar to the Tygart River basin, reconnaissance investigations have also been conducted along the Cheat River to consider alternative measures to reduce flood damages. What recommendations have been identified for further consideration?

Answer. The Corps has identified projects with benefit to cost ratios probably greater than 1 to 1 at Parsons, Rowlesburg, and Camp Dawson.

Question. Are all these possible projects ready to proceed to the feasibility study stage?

Answer. Parsons would be ready for a cost-shared feasibility study. The Cheat River Basin report recommends further reconnaissance level studies for Rowlesburg and Camp Dawson; however, this report has not been approved.

Question. What is the estimated cost to conduct the necessary reconnaissance studies for Rowlesburg and Camp Dawson?

Answer. The estimate for Rowlesburg is $400,000 and the estimate for Camp Dawson is $350,000.

Question. Is a non-Federal partner and cost-sharing agreement necessary to complete the reconnaissance level study?

Answer. No.

Question. Are the funds to complete the studies for Rowlesburg and Camp Dawson included in the budget?

Answer. No.

Question. If funds were provided in fiscal year 1997 to conduct the full reconnaissance studies for Rowlesburg and Camp Dawson, would the Corps be able to conduct such work in fiscal year 1997?

Answer. Yes.

Question. What is the estimated cost for the improvements identified as possible in Parsons?

Answer. The preliminary estimated cost is $9 million, based on reconnaissance studies.

Question. What is the estimated cost for the feasibility study phase for Parsons?

Answer. The cost estimate is $500,000. However, a local sponsor and cost-sharing agreement would need to be in place before the study could begin.

Question. Have funds been included in the budget this year to initiate a feasibility study at Parsons?

Answer. No. Since no potential sponsor has indicated its willingness to cost share this study, the Corps has not budgeted for it.

Question. In addition to investigating flood control measures in the Cheat Basin, the Corps has identified potential environmental restoration projects related to acid mine drainage remediation. One possible site has been identified on the North Branch of Lick Run, which feeds into the Cheat River. Did the reconnaissance report recommend further feasibility study of this project.

Answer. Yes.

Question. Are funds for this effort included in the budget?

Answer. Yes. An amount of $350,000 is proposed for a feasibility study of environmental restoration at Lick Run. Again, this requires a non-Federal match.

Question. Is the State of West Virginia interested in proceeding with the Lick Run project, or have they identified other priorities?

Answer. It is our understanding the West Virginia Division of Environmental Protection and West Virginia Division of Natural Resources have identified other priorities. They now believe that a reconnaissance investigation of the lower Cheat River Basin would be more appropriate because the study would identify all the key sites for potential environmental restoration projects and enable the Corps and the State to recommend projects for subsequent feasibility studies.

Question. Are environmental restoration projects subject to the same cost-sharing requirements as flood control projects? If so, has a non-Federal sponsor for the Lick Run project been identified?

Answer. The West Virginia Department of Environmental Protection is the likely non-Federal partner. Under the Administration's proposed legislation, environmental restoration projects would be cost shared 50 percent Federal and 50 percent non-Federal.

Question. What is estimated cost to complete the acid mine drainage mitigation at Lick Run?

Answer. The Corps estimate of the construction cost is $1.2 million.

TYGART RIVER BASIN

Question. Using funds appropriated in fiscal year 1995, the Corps has been conducting a reconnaissance level investigation of possible flood protection measures to protect communities in the Tygart River basin. This report was completed in December, 1995. What can you tell us about the recommendations of this report? Is further study necessary?

Answer. The study indicated that a floodwall protection project for Belington would be economically feasible, but that additional protection for Philippi is not economically justified. Funds were added in fiscal year 1996 for feasibility studies at both Belington and Philippi, and the Corps is coordinating with both sponsors regarding their interest in cost-sharing the studies.

Question. What would be the cost-sharing requirements if these projects were pursued further?

Answer. For the feasibility study phase, it would be the normal requirement of 50 percent non-Federal match. Belington has not decided whether to pursue the next step, which would be a feasibility study. Belington is working with Barbour County, regional planning authorities, and the State to identify possible funds to meet the non-Federal cost sharing requirement. Philippi is not interested in pursuing a cost shared feasibility study. For implementation of new structural flood control measures, such as at Belington, the Administration has proposed a non-Federal cost share of 50 percent of project costs, subject to ability to pay.

Question. As part of the Tygart River basin reconnaissance study, environmental restoration on Grassy Run was also evaluated. What involvement has the Corps had with the Office of Surface Mining and the relevant West Virginia agencies?

Answer. The West Virginia Department of Environmental Protection would be the cooperating partner for this project. For this environmental restoration project, the non-Federal partner would need to share in 50 percent of the feasibility study cost and 50 percent of the project cost. The Office of Surface Mining is represented on the steering committee for the Grassy Run feasibility study.

Question. What is the estimated cost for Grassy Run restoration? Will this effort be cost shared?

Answer. The construction cost is estimated to be $9.1 million. Before proceeding with construction, a feasibility study would need to be conducted at an estimated cost of about $1 million, including $500,000 Federal and $500,000 non-Federal. Federal funds to initiate a feasibility study for Grassy Run are included in the fiscal year 1997 budget request.

Question. Would a specific project authorization for acid mine drainage mitigation at Grassy Run be necessary before proceeding to construction?

Answer. Yes.

Question. What benefits would accrue from such a project?

Answer. Such a project would significantly decrease drainage runoff concentrations of acid, iron, and aluminum reaching the Tygart River. Expected benefits include extending improved water quality and associated habitat conditions that currently exist in the Tygart River above Grassy Run. This would represent significant water quality and habitat improvements in an additional 6–7 mile segment of the Tygart River. Beneficial habitat impacts of the proposed restoration project will not be limited to the river reach immediately below the project area. The reduction in acidity loadings at Grassy Run would increase the alkalinity available to neutralize downstream acid mine drainage inputs, thereby extending the positive impact on the river further downstream. Reduction of these contaminant loadings will enhance the continued improvement of fisheries quality at Tygart Lake.

Question. How would the costs of the proposed method of treatment at Grassy Run compare to traditional limestone treatment stations?

Answer. Cost comparisons were made with feasible chemical and treatment alternatives such as liquid caustic soda and hydrated lime and it was determined that the annual costs associated with handling and disposing of the excessive sludge volumes generated by these treatment methods would greatly exceed the total implementation cost of a 20-year passive system. The total project cost for a successive alkalinity producing system at Grassy Run is estimated at approximately $9.1 million, whereas the annual sludge removal and disposal costs for caustic soda and hydrated lime treatment are $17.3 million and $18.6 million, respectively.

CHARLESTON RIVERFRONT PARK

Question. In fiscal year 1995, Congress appropriated $275,000 for the final component of the riverfront park being constructed in Charleston, West Virginia. These funds are to be used for the construction of a wharf. What is the status of construction of this remaining component?

Answer. The wharf is an additive item in the basic construction contract. The Corps and the sponsor have mutually agreed to postpone initiating construction of the wharf until a Contracting Officer's Decision is issued on the merits of a claim received from the project construction contractor.

Question. What is the status of the contractor claim that has been filed related to construction of the riverfront park?

Answer. The Corps is completing a draft Contracting Officer's Decision on the merits of the claim. The draft is scheduled to be available for all parties to review in April 1996.

Question. If the Corps must settle the claim, and the contract for the wharf is executed by that time, what source of Federal funding would be used to pay the claim?

Answer. Project costs are cost shared 50–50 with the sponsor and include the amounts of settled claims. Pending settlement of the claim, the estimate of project costs will reflect the Contracting Officer's Decision, whatever that may be. To pay the Federal share of project costs for work already under way, the Corps will use funds appropriated to the project and, if necessary, will reprogram funds to the project.

Question. Will the local project cooperator have to share in any costs associated with paying the claim if the decision is against the Federal government?

Answer. Yes. In accordance with the Project Cooperation Agreement, settled claims, if any, are included in project costs and are cost shared.

Question. Is it normal practice for local sponsors to share in contract claim liabilities?

Answer. Yes. This is a provision included in all cost shared Project Cooperation Agreements.

SUBCOMMITTEE RECESS

Senator DOMENICI. We stand recessed.

[Whereupon, at 3:45 p.m., Tuesday, March 26, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1997

TUESDAY, APRIL 16, 1996

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:25 a.m., in room SD–608, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Gorton, Johnston, and Reid.

DEPARTMENT OF ENERGY

ATOMIC ENERGY DEFENSE ACTIVITIES

STATEMENT OF DR. VICTOR REIS, ASSISTANT SECRETARY FOR DEFENSE PROGRAMS

ACCOMPANIED BY:

- **JOAN B. ROHLFING, DIRECTOR, OFFICE OF NONPROLIFERATION AND NATIONAL SECURITY**
- **FRED S. CELEC, DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE, NUCLEAR MATTERS, DEPARTMENT OF DEFENSE**

OPENING STATEMENT

Senator DOMENICI. The subcommittee will come to order.

For the record, we have a technical problem—our court reporter has not yet arrived. So, what we thought we would do, rather than not proceed with the hearing, since most of the early part of this will be taken up by statements of the subcommittee members and the witnesses—in any event, your oral statements will probably be encapsulated in your prepared statements. So, we will make the full prepared statement part of the record and then proceed with your oral remarks. At that point, we will see if the reporter is here. If not, we will then use the tape recorder and do our own.

Senator REID. Mr. Chairman, maybe also we could submit some questions in writing and they could give us answers back in writing, too.

Senator DOMENICI. We will do that. I am sure that we would do that in any event, Senator Reid, and there may be some oral questions we want to ask. But, in any event, we will hear from the three of you. It is important that we have this hearing because the current schedule and thinking is for a compressed session and reduced time period for consideration of appropriations bills.

Welcome, everyone. This morning the Energy and Water Development Subcommittee will focus on the fiscal year 1997 budget request for the Department of Energy's atomic energy defense weapons activities and the nonproliferation and national security programs.

The total fiscal year 1997 budget request for weapons activities is $3.71 billion, about $254 million—or 7.3 percent—over the comparable appropriation for 1996. Programs and activities under weapons activities include core stockpile stewardship and management; inertial confinement fusion, which includes the national ignition facility; Nevada test site readiness; the accelerated strategic computing initiative; and technology transfer, just to name a few.

For nonproliferation and national security, the fiscal year 1997 budget request is $587 million, an increase of $34 million over the 1996 comparable level of $553 million. Programs included in this area are nonproliferation activities related to protecting, securing, and accounting for special nuclear materials, proliferation detection, and treaty verification, and cooperative programs with the former Soviet Union and the New Independent States, among others.

These are highly important programs to the national security and scientific and technology underpinning of the United States. Today, we will review the adequacy of the funding levels for 1997 and how the Department of Energy plans to operate and sustain these programs through the 1997 year and thereafter.

We are meeting this morning in open session to receive testimony from Dr. Victor Reis—and that is Vic Reis to some of us—who is the Assistant Secretary of Energy for Defense Programs; Ms. Joan B. Rohlfing, Director, Office of Nonproliferation and National Security, the Department of Energy; and also, this morning, from Mr. Fred Celec, Deputy Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs in the Department of Defense. He is here to provide the DOD's perspective on the DOE's budget request for defense-related programs.

We welcome each of you here today. I propose that we hear the testimony of each of you and then we will open it up for questions. But before that, we will yield to each Senator—first, to the ranking member, Senator Bennett Johnston.

STATEMENT OF J. BENNETT JOHNSTON

Senator JOHNSTON. Thank you, Mr. Chairman.

I would like to welcome Vic Reis, as well as Ms. Rohlfing and Mr. Celec, and congratulate you on the excellent performance of what is, I think, some of the most difficult and demanding jobs in all of the Federal Government.

Your activities call for a level of expertise that few areas of the Federal Government can equal. And I want to thank you for that service. Keeping a credible, safe, reliable nuclear deterrent, dealing with nonproliferation, and biological weapons programs are very important activities.

Our national labs, of course, are going to be the key to maintaining a safe and reliable nuclear deterrent. So we want to encourage the health and the vitality of those national labs. I know that you share that role, Vic.

TECHNOLOGY TRANSFER ACTIVITIES

I also want to encourage you in the greater responsibility for technology transfer to the private sector. We were just talking up here before the hearing started about the importance of technology transfer CRADA's, about the contribution they can make to America, and about the need not to restrict those narrowly to just those things that pay off the national defense. A lot of things have grown out of national defense which contribute greatly to our economy and to the welfare of our people. And I think that we ought to pursue those even if they are not narrowly defense related.

Senator Domenici was talking about medical programs where, if the national labs can contribute to a cure for cancer, the fact that it came out of a national weapons lab on a defense program should not prevent us from pursuing it.

The ICON Program, which we have in my State, has tremendous potential for defense. It can revolutionize manufacturing in defense. But it can also revolutionize manufacturing in everything from automobiles to widgets. So, I think that we ought to pursue those, because we are just now beginning to get that tremendous payoff from those CRADA's.

Again, I want to thank you for your good work and look forward to hearing your testimony.

Thank you.

Senator DOMENICI. Thank you.

Senator Reid.

STATEMENT OF HARRY REID

Senator REID. Mr. Chairman, thank you very much.

We all know that we have significant responsibilities here, with the tightening of the Federal purse strings. There is not one of us today that would argue that we should not cut spending. The question is where.

Mr. Chairman, I believe that when it comes to nuclear weapons, the nuclear weapons complex, that we need to proceed with our cuts on a very cautionary basis. The problem with the world today is not nuclear testing, but nuclear weapons. We recognize that we will never have the testing programs that we have had in the past, but we have to come up with new testing programs. My personal opinion is that we have been too cautious in doing that.

I would also say here, Mr. Chairman, that even though Senator Johnston and I have disagreed on nuclear waste over the last several years, I think that we are going to really miss his leadership with defense issues, including these nuclear weapons programs. With the work of the two of you these last many years, I think that our Nation has been extremely well served. And I think that the country and the world is going to miss the leadership of Bennett Johnston. There is no one that I know of that understands these issues better than he—no one has shown more leadership in this area than Senator Johnston.

And I repeat that it is really too bad that we are going to miss his leadership. There is going to be a void. And those of us who are going to remain are going to have to work extra hard to make up for that void.

I will just say briefly, and I have talked to Dr. Reis on a number of occasions about this, we all recognize the multibillion dollar infrastructure that we have at the Nevada test site. And I believe that we have done a good job to this point in not having it deteriorate. I hope that we are able to get some programs there that will allow us to go forward in securing a safe nuclear deterrent.

Thank you, Mr. Chairman. And I also apologize to the witnesses because I am not going to be able to spend a lot of time at the hearing this morning. I have another hearing to attend where I am the ranking member, the Military Construction Subcommittee, and I have to return to that.

Senator DOMENICI. Thank you very much. I concur wholeheartedly in your statements regarding all that you have said regarding our colleague, Senator Johnston. We came to the Senate together. It appears that we are not going to leave together. He is leaving of his own volition. I will leave if the voters turn me out. In that event, we would be leaving together.

STOCKPILE STEWARDSHIP PROGRAM

Dr. Reis, as you know I was in Albuquerque, about 5 or 6 days ago, at the dedication of a new facility that will be an integral part of the Science-based Stockpile Stewardship Program. I had the opportunity to discuss the importance of the new Stockpile Stewardship Program and what this meant to me. The director of the three great nuclear deterrent laboratories, Los Alamos, Sandia, and Livermore, have to certify to the President of the United States that the nuclear stockpile is in order, that it is safe, that it is reliable and capable of performing as designed. The Science-based Stockpile Stewardship Program is a new way of trying to keep this stockpile safe, secure, and all the other qualities that we want in it, without producing new weapons—keeping the current weapon inventory in certifiable condition.

I thought it was very important to speak of certification until a three-star admiral, representing the strategic forces of our country—who was the chief speaker at this event, Admiral Burns—spoke. He said that everything that this Senator said is right. But I would like to speak to all of you about the men and women who man and take care of and keep ready the Nation's nuclear weapons. That is where the rubber meets the road.

And he said, in effect, that we are constantly vigilant and concerned about whether we are maintaining, through stewardship, this stockpile in a condition that justifies us having our young men in submarines and other places around the world manning these weapons.

I had not thought of it that way. I had thought of it from our hearings, instead of from the military's standpoint. But I think it does behoove us—and I say to you, Dr. Reis, you have done a magnificent job of coming up with an idea for the transition from production of nuclear weapons to a controlled stockpile, much smaller in number, yet verifiable, trustworthy and all the kinds of elements that must be considered in order to make science-based stockpile stewardship successful.

I say to you, representing the Department of Energy—and if the Secretary were here, I would tell her—this is probably one of the most important functions of the Department of Energy. And if we do not do this one right, then there is no question that those who would like to dismember the Department or make other changes will prevail.

In fact, the thing that concerns most of us is that we need a strong, independent entity in control of the well-being of our nuclear stockpile, including its technical aspects over time. So while this hearing may not appear to be very big, it is very important in determining if the amount of money provided is sufficient to carry-out that mission, whether there are critical problems or hang-ups in the evolution of the new scientific equipment, capabilities, buildings, and technology requirements, or whether it is moving forward at an adequate pace.

Atomic energy defense activities is over 50 percent of the DOE's total budget, and that is why we have to do this job right—or this Department becomes more vulnerable to those who would seek to dismember or do away with it. Those are just my own thoughts and I thought that I would share them today. I will be talking about this in my capacity as chairman of this subcommittee a lot this year and in the years to come, if I am still here. I want the Department to know that I think that I have come to an understanding of the importance of this issue. It is very important that we disseminate that to some other Senators who have no idea of what we are talking about.

Senator REID. Mr. Chairman, you kept it a secret. The Democrats did not even know that you had an election this year. [Laughter.]

Senator DOMENICI. That is not true, Senator Reid. They are running a lot of ads out there. I would say, however, they are not directed at me. But they do have quite an itinerary of ads supporting the President.

In any event, Dr. Reis, would you proceed. Your written testimony will be a made a part of the record.

STATEMENT OF VICTOR REIS

Dr. REIS. Thank you very much, Mr. Chairman. Thank you for your kind remarks. Mr. Chairman, Senator Johnston and Senator Reid, it really is a pleasure to present to you the Department of Energy's defense programs budget request for fiscal year 1997.

DEFENSE PROGRAMS BUDGET REQUEST

The budget request is for $3.71 billion. This represents an increase of approximately $254 million over what we were allocated in fiscal year 1996. But, more important, it represents the completion of the transition phase for the nuclear weapons enterprise following the end of the cold war and the beginning of a new era.

This new era was codified by the Department of Defense's "Nuclear Posture Review" signed by the President on September 11, 1994, the President's statement of August 11, where he committed the United States to seek a zero-yield comprehensive test ban treaty, the Senate ratification of the Start II Treaty on January 26 of this year, the President's signing of the nuclear weapons stockpile memorandum on March 11, and, of course, Public Laws 104–46 and 104–106 passed by the Congress for fiscal year 1996.

At its essence, this new era is characterized by three basic elements. One, the mission of the nuclear forces remains that of deterrence. There are too many nuclear weapons worldwide for the United States to abandon this keystone of national security. Two, the production of new nuclear weapons will be replaced by stockpile life extensions. The current stockpile will be extended indefinitely. And, three, underground nuclear testing will be replaced by stockpile stewardship. Weapon assessment and certification will be accomplished by detailed nonnuclear testing, experimentation and simulation.

STOCKPILE LIFE EXTENSIONS

The concept of stockpile life extension is anchored in the fact that the current stockpile is modern, well-tested, reliable, and safe. We then recognize that each and every component in each and every weapon has only limited life and must be replaced at some time. This involves both a vigorous surveillance program to search for defects, an enhanced surveillance program to predict when aging defects might occur and the ability to replace and certify new weapons parts.

This in turn requires a flexible manufacturing capability that can produce parts to appropriate specification at the appropriate rate. The Secretary of Energy announced as part of the programmatic environmental impact statement that downsizing and modernizing the current production complex, Oak Ridge Y–12, Kansas City and Pantex, plus upgrading the Los Alamos TA–55 plutonium pit production facility, is the Department's preferred alternative to meet this new production requirement.

TRITIUM

Perhaps the most obvious limited-life component is the radioactive isotope tritium. Tritium is an essential ingredient of all U.S. nuclear weapons and decays at approximately 5 percent a year. The United States has not produced tritium since 1988, using tritium from dismantled weapons to make up for the tritium that naturally decays. But a new source will be needed. Last December 5, the Secretary announced that the Department's preferred strategy is to go with a dual-track approach of a commercial light water reactor and an accelerator, with the final decision to be made in fiscal year 1998.

STOCKPILE STEWARDSHIP

Like stockpile life extension, the concept of stockpile stewardship is likewise anchored in the satisfactory performance and underground nuclear test data base of the current nuclear weapons stockpile. But it also critically depends on the skills, knowledge, and judgment of the people working at the weapons laboratories. In practice, it involves a detailed breakdown of all the processes in a nuclear explosion and potential nuclear accidents, and then application of all the best experimental and computational tools to be able to assess and certify the nuclear weapons as they age and the components are replaced.

Stewardship is not an abstract concept. In the past few years, there have been several examples where problems have been identified that in the past would have called for underground testing to resolve. In one such example, an aging defect was discovered and the initial assessment varied widely on its effect on weapons performance. To get an answer, independent assessments at each weapon design laboratory were obtained, using new computational codes, which were validated by lasers, pulse power and shockproof devices, and archival underground test data.

The result was that the effect was judged to be small, and the DOD concurred on the result. But we know that in the future, as the stockpile ages, as the components are replaced, and as we get further and further away from the nuclear test data base, the current tools for assessment and certification must improve dramatically if we are to maintain the stockpile without testing. That is the basis for the new experimental facilities: the national ignition facility, the dual-axis radiographic hydrodynamic test facility, the Atlas pulsed power device, and the dramatically improved computation capability through the accelerated strategic computing initiative. These new programs, designed to respond to the new requirements, plus our ongoing programs of weapons dismantlement and emergency response, are described in my written testimony.

I must stress to you, Mr. Chairman, that this is not a risk-free program. The President recognized this when he stated in his announcement on the zero-yield comprehensive test ban treaty, and I quote, "In order for this program to succeed, both the administration and the Congress must provide sustained bipartisan support for the Stockpile Stewardship Program over the next decade and beyond."

He initiated a process where each laboratory director and the commander of the Strategic Command must certify each year on the health of the stockpile, and he directed that we maintain the readiness of the Nevada test site. The Senate added similar conditions last January 26, when it ratified the Start II Treaty by a vote of 87 to 4.

SUMMARY

Mr. Chairman, I believe we can satisfy the requirements laid upon us by the President, the Department of Defense and the Congress. I believe we can maintain the current stockpile without nuclear testing for the foreseeable future, because I believe in the skills, courage, and judgment in the men and women in the laboratories and plants of the nuclear weapons complex.

PREPARED STATEMENT

I urge you to help give them the tools to do the job, and I look forward, as always, to working with you and this committee, and would be pleased to answer any questions that you might have.

[The statement follows:]

PREPARED STATEMENT OF DR. VICTOR REIS

Defense Programs is requesting $3.7 billion in fiscal year 1997 to carry out our stockpile stewardship and management responsibilities. The need for a safe and reliable nuclear weapons stockpile remains unchanged. A credible nuclear deterrent remains the foundation of U.S. national security policy. President Clinton has stated on a number of occasions "the United States must and will retain strategic nuclear forces sufficient to deter any future hostile foreign leadership with access to strategic nuclear forces from acting against our vital interests and to convince it that seeking a nuclear advantage would be futile. In this regard, I consider the maintenance of a safe and reliable nuclear stockpile to be a supreme national interest of the United States."

The United States' policy governing the nuclear weapons stockpile has undergone profound change to reflect the new and continually evolving geopolitical and military structures of the post Cold War world. In the past, our confidence in the stockpile was ensured through weapons research and development at the laboratories, supported by an extensive production complex and underground nuclear testing at the Nevada Test Site. In 1992, the United States announced a halt in the production and design of new nuclear weapons and a moratorium on underground nuclear testing.

In 1993, President Clinton continued the moratorium on testing and initiated the Science-Based Stockpile Stewardship program when he challenged the Department "to explore other means of maintaining our confidence in the safety, reliability, and performance of our weapons." The challenge was also supported by Congress through passage of the Fiscal Year 1994 National Defense Authorization Act that directed the Secretary of Energy "to establish a stewardship program to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons."

Last August, the President, emphasizing his continued support and confidence in science-based stockpile stewardship, announced that the United States would pursue a true zero yield Comprehensive Test Ban Treaty (CTBT) as a means of reducing the danger posed by nuclear weapons proliferation. The President also outlined a series of Safeguards, A through F, that define the terms under which the U.S. would enter the CTBT. Safeguard A specifically directs the conduct of a stockpile stewardship program to ensure the safety and reliability of the stockpile. In January, the Senate gave overwhelming approval to the START II Treaty and declared that the United States "is committed to proceeding with a robust stockpile stewardship program * * *".

The Stockpile Stewardship and Management Program, developed by Defense Programs in response to the above direction and policy guidance, is a highly integrated technical program for maintaining the safety and reliability of the U.S. nuclear stockpile. There are three primary goals of this program:

—Provide high confidence in the safety, security and reliability of the U.S. stockpile to ensure the effectiveness of the U.S. nuclear deterrent while simultaneously supporting U.S. arms control and nonproliferation policies.

—Provide an appropriately sized, affordable, environmentally sound, and effective production complex to provide component and weapon replacements when needed, including limited lifetime components and tritium, and

—Provide the ability to resume U.S. nuclear testing and reconstitute nuclear weapon production capacities, consistent with Presidential Directives and the START II Treaty, should national security so demand in the future.

Traditionally, the activities of the three weapons laboratories and the Nevada Test Site have been regarded somewhat separately from those of the weapon production plants. However, all stockpile stewardship and management activities must achieve a new, closer linkage to each other.

The Stewardship activities will play a major role in reducing the vulnerability of the smaller stockpile to single-point and common-mode failures, principally through research base support of the enhanced surveillance a new Stockpile Management initiative. The stewardship and management programs have shared responsibilities in advanced manufacturing and systems engineering studies to integrate technological drivers such as advanced computing into an efficient and effective production complex of the future. The Dual Revalidation Program, managed by Stockpile Management, will encompass both laboratories and plants in a new joint process for validating the safety, reliability and performance of the stockpile over time. Finally, the Radiological/Nuclear Accident Response program, a Management function, continues to utilize capabilities throughout the weapons complex, including weapons expertise at the laboratories and specialized capabilities at the Nevada Test Site.

The Stockpile Stewardship and Management Program will transform the nuclear weapons complex from capacity-based to capability-based. The future complex will rely more on scientific understanding, computer simulations, computer aided design, and manufacturing agility rather than test empiricism and manufacturing capacity. Having a surge capability for reconstituting a larger stockpile in an emergency could permit the United States to further reduce its active stockpile if international conditions so warrant. Continued interactions with the commercial industrial base, through technology partnering, can leverage our limited resources with industry capabilities to assist us with advanced manufacturing methods, improved materials development, and high speed, integrated computing and communication systems.

STOCKPILE STEWARDSHIP AND MANAGEMENT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

The national security policy changes over the last several years have not eliminated the need for any of the current or historical core competencies and capabilities at the weapons laboratories, industrial plants, or the Nevada Test Site. These competencies and capabilities must be maintained for the foreseeable future. Facilities in the current complex were sized to support a larger and more diverse weapons stockpile than will be required in the future and represent a capacity that exceeds our current need. On February 28, 1996, the Department released the Draft Stockpile Stewardship and Management Programmatic Environmental Impact Statement (PEIS) which will form the basis for the Department's transition to the capability-based complex of the future. The PEIS covers the future capabilities required of the three weapons laboratories (Los Alamos, Sandia and Lawrence Livermore) the four industrial plants (Kansas City, Pantex, Savannah River, and Oak Ridge Y–12) and the Nevada Test Site.

The Department's preferred alternative for stockpile stewardship proposes construction and operation of the National Ignition Facility and the Contained Firing Facility addition to the Flash X-Ray Facility at the Lawrence Livermore National Laboratory and the Atlas Facility at the Los Alamos National Laboratory. All three facilities examine different aspects of weapons physics, key to understanding weapon safety and reliability. It should be noted that the Dual Axis Radiographic Hydrodynamic Test (DARHT), planned for Los Alamos National Laboratory, is another key facility in support of the stockpile stewardship program, but is considered as part of the no action alternative because an Environmental Impact Statement has been prepared for that facility and an independently justified Record of Decision has been made.

The Department's preferred alternative for stockpile management proposes to downsize in-place the following activities: weapons assembly/disassembly at Pantex; nonnuclear component fabrication at the Kansas City plant; and secondary and case component fabrication at Oak Ridge (Y–12). Pit component fabrication is to be reestablished with a small production capacity at Los Alamos. At this time, no preference has been established for high explosive component fabrication, but we will continue to examine this issue. For major stockpile management functions, downsizing at the current locations has a number of advantages. First, it minimizes the socioeconomic impact on the worker and communities surrounding the facilities. Second, it is the most cost effective solution. Finally, it lowers the technical risk and provides the needed flexibility to support potential variances in stockpile size under START I or START II.

While downsizing in place and the resulting decontamination and decommissioning activities will minimize the number of displaced workers, some job losses are inevitable. To assist the workers and host communities, the Department will prepare workforce restructuring plans, as required by law and in consultation with our stakeholders, to mitigate job losses. The Department is conducting public hearings in Washington, D.C., and at each of the affected sites. The first hearings were in late March and all hearings will be completed by the end of April. The comment period commenced March 8, 1996, and will run to May 8, 1996. A final Environmental Impact Statement is scheduled for July followed by a Record of Decision in August 1996.

STOCKPILE MANAGEMENT ACTIVITIES

The Stockpile Management program continues its historical responsibilities to provide near term and long range support for the stockpile, and for ensuring an adequate supply of tritium. It also includes new programs and procedures to deal with the aging stockpile, a result of no requirement to build new weapons. Along with stockpile surveillance, the historical responsibilities include normal maintenance, corrective maintenance and system refurbishment, as well as weapon dismantlement. The DOE has completed a separate Programmatic Environmental Impact Statement for tritium production, and is pursuing a dual-track approach to select a production method by 1998.

The current stockpile is safe, secure, and reliable. However, the history of the stockpile has shown that continuous surveillance, repair, and replacement of components and subsystems are commonplace. In fact, the nine weapons that will be in the START II stockpile have already been retrofitted to varying degrees and some have had major components of the nuclear system replaced. We cannot predict with any certainty when such problems will arise in the future, but we expect that as the stockpile ages beyond its intended lifetime, these types of problems may become more commonplace.

An enhanced surveillance program has been initiated to better predict weapon components failure, due to aging, in order to allow refurbishment of the stockpile. We are looking at new methods for manufacture that will provide more efficient realization of products with waste-stream minimization. Our maintenance program not only deals with ongoing weapon upgrades and modifications, but also with the routine need to exchange limited-life components like tritium reservoirs and neutron generators. Several new programs have started focusing on weapon evaluation, such as dual revalidation of the W76 warhead in the Trident and the new requirement of the President for annual certification of the stockpile. Finally, our emergency response program is ready in the event of a nuclear incident or accident. This program conducts several exercises annually, at various levels, to maintain its response capability.

SURVEILLANCE

Ongoing surveillance is vital to the continuing viability of the stockpile. These activities support the entire weapons stockpile in the quantities authorized by the Nuclear Weapons Stockpile Plan. Surveillance is conducted by inspecting a statistically significant number of each weapon type drawn from the stockpile annually, tearing them down, testing the components, and, in most cases, rebuilding them and placing them back into the stockpile. A few of these weapons are tested to destruction. A selected number of flight tests with simulated nuclear components are also performed annually. This process requires that the tested weapons that are rebuilt are reassembled from components that were originally manufactured or stockpiled when the weapon was being produced. In some cases, we expect to run out of new components and will have to substitute replacement components or otherwise determine how to rebuild them.

The surveillance program historically has been successful in discovering weapons defects. We expect that it will continue to find between one and two defect types per year, which will require some degree of augmented maintenance. We are currently testing pits (Los Alamos), secondaries (Y–12), neutron generators (Sandia), detonators (nuclear design laboratories), gas reservoirs (Savannah River), and non-nuclear components (Kansas City), in addition to the main line disassembly activity ongoing at Pantex.

MAINTAINING THE STOCKPILE

Maintaining the stockpile has become a program which will provide for indefinite life extension. Before the end of the Cold War, the average life of all weapons in the stockpile never exceeded 13 years, also the current average, and weapons rarely remained in the stockpile beyond 30 years. With no new weapons planned, weapons will soon begin to approach an age beyond our experience base. DOE must continue to supply hardware for Limited Life Component Exchanges (LLCE's), provide hardware to support ongoing and approved future refurbishment through the Stockpile Life Extension Program (SLEP), and provide hardware to prevent attrition of the stockpile by the surveillance program. In addition, we must continue to meet the stockpile requirements for Field Service, logistics support functions, and dismantlement and storage.

With weapons being retained in the stockpile for an indefinite period, individual weapon parts could eventually reach the limit of their reliable lifetime and may require refurbishment or replacement. Thus, design, production, and refurbishment capabilities must be structured to respond to the requirements of the SLEP. Near-term scheduled deliverables supporting the stockpile include: LLCE (tritium reservoir and replacement activities), stockpile refurbishment (B61 Alterations, B83 quality improvement program, W76 neutron generators, W87 life extension program), surveillance rebuilds (W88 pit), and the capability to design and develop changes to existing warheads and components (warhead protection program, common radar for B61/B83 and new tritium reservoir for W76).

DUAL REVALIDATION

Dual Revalidation is a new, robust form of peer review designed to assure both DOE and DOD that the stockpile remains safe, secure and reliable. The Dual Revalidation Program was approved by the Nuclear Weapons Council (NWC) in January 1996. In the absence of underground nuclear testing and with no new warhead development, this new process will validate, with high confidence, that the stockpile will continue to meet its specifications for Military Characteristics (MC's) and Stockpile-to-Target Sequence (STS).

Under Dual Revalidation, two teams will perform independent evaluations, the first team drawn from the original design laboratory and the second team from the alternate laboratory. Dual Revalidation will provide a baseline assessment of the condition of the warhead today and a process to identify future problems. The evaluation will be managed by the joint DOD/DOE Project Officers Group and is expected to take 2–3 years for each warhead type. The W76 will be the first warhead revalidated. The increased DOD involvement in and technical understanding of the assessment should provide them with the confidence in the stockpile previously supplied by nuclear testing.

NEW ANNUAL CERTIFICATION PROCEDURE

A primary DOE responsibility is to certify the safety and reliability of the nation's nuclear stockpile. As a result of the President's August 11, 1995, announcement, there is a new annual reporting and certification requirement, requiring the Secretaries of DOD and DOE, as advised by NWC, the Commander of the U.S. Strategic Command, and the Directors of DOE's Nuclear Weapons Laboratories, to provide an annual certification that the stockpile is safe and reliable in the absence of nuclear testing. A broad-based review of ongoing efforts and existing documentation will be conducted each year; it is not intended as justification for any new program(s). All active and inactive weapon types will be considered by the weapons laboratory responsible for the original design and the DOD-led joint Project Officers Group. This effort is intended to assure the President that nuclear weapons are safe and reliable as we continue on the path to a true zero yield CTBT. We expect to submit the first annual report to the Secretaries of Energy and Defense in August 1996.

ENHANCED SURVEILLANCE PROGRAM

Enhanced surveillance is an essential development program for stockpile management. The program was finalized in the first quarter of fiscal year 1996 and the development effort was initiated in the second quarter. It is the critical element of the SLEP and uses advanced science to predict component and material lifetimes. The enhanced surveillance program is a complex-wide integrated program involving the four production plants and the three weapons laboratories and is central to restructuring our stockpile maintenance and refurbishment procedures in an era without underground nuclear testing and no new production.

To accomplish this effort, enhanced surveillance will focus on three major areas: (1) materials science, (2) development of materials aging models, and (3) testing and monitoring technologies. This program will develop models which will account for aging effects in weapons materials, components, and systems that will help us to predict service lifetimes and to schedule, with the DOD, necessary component replacement. Because the stockpile of the future will be smaller and less diverse, we must proactively identify and repair components before they fail (due to aging effects) to ensure the maintenance of a credible stockpile. This will have the effect of making all weapons components subject to time-phased replacement with lifetimes varying widely, for example, metal versus plastics. The advanced diagnostic and testing techniques developed in this program will collect information that not only supports our model development, but advances our knowledge of the behavior of these complicated materials and components over time. It is anticipated that diagnostic instruments may be required that can be placed in a weapons system to monitor critical components in real time.

The surveillance techniques, procedures, and models developed in this program will be incorporated into the ongoing core surveillance program when we are confident of their validity.

With these new tools, our program of stockpile maintenance will be in a genuinely predictive mode.

ADVANCED MANUFACTURING CAPABILITIES

Advanced Design and Production Technologies (ADaPT) is an initiative to coordinate and focus the activities of the laboratories and weapons plants in the creation of a reconfigured and rightsized production capability. It will be a necessary element to tie surveillance activities to future manufacturing capabilities. ADaPT will exploit emerging information and manufacturing technologies to better integrate the nuclear weapons complex and will develop modular, scalable, environmentally sound manufacturing processes needed for maintenance of a reliable stockpile under a wide range of demands. Current ADaPT work is concentrated on planning and evaluation of current advanced manufacturing activities in the plants and laboratories.

TRANSPORTATION OF SPECIAL NUCLEAR MATERIALS

The transportation of special nuclear materials has become an increasingly important element of stockpile management as a result of both dismantlement and the restructuring and consolidation of military bases in the United States. The Department provides for the transportation of special nuclear materials, nuclear weapons, and weapons components throughout the continental United States via specially designed safe, secure tractors and trailers (SST's).

The Department has accumulated more than 83 million miles of over-the-road experience with no accidents causing a fatality or release of radioactive materials, and without damage or compromise of the cargo. Much of this can be attributed to the well managed, highly trained, competent, and dedicated work force of more than 260 couriers with nationwide secure communications. In addition, largely due to our specialized in-house training capability, the nuclear material couriers are one of the most highly effective protective forces in the world. Seventeen new trailers called Safe Guard Transporters (SGT), incorporating the latest advances in materials and transportation technology, are currently being built to keep the overall system best in class.

DISMANTLEMENT

Since the end of World War II, the Department and its predecessors have disassembled some 55,000 nuclear warheads in a safe, secure, and an efficient manner. During the last fiscal year, 1,393 weapons were safely dismantled at the Pantex Plant. As of the week ending April 7, 1996, we have dismantled 694 warheads this fiscal year, and expect to complete the fiscal year 1996 total goal of 1,164. We are on schedule to complete the W48, B61 mod 0, and W70 dismantlement lines and start up the B61 mod 2 and W69 dismantlement lines.

In fiscal year 1997, we expect to dismantle about 1,300 nuclear weapons and will complete the W55 and B61 mod 2 dismantlement lines and start the W56, B61 mod 5, and W79 lines. The planned dismantlements should eliminate the backlog of retired weapons by fiscal year 1999 and supports DOD activities. The Pantex workload is expected to remain stable for the next several years as we reduce the nuclear stockpile consistent with our arms control commitments.

EMERGENCY RESPONSE

The Emergency Response program is the U.S. Government's singular national capability to provide the critical technical expertise necessary to resolve any major radiological emergency or nuclear accident within the United States and abroad. Its intimate association with the nuclear weapon complex allows us to capitalize on weapon program core activities in both the areas of stockpile stewardship and management. The all-volunteer force that make up the cadre of deployment forces are mostly from the core weapons program.

Not withstanding the Department's pursuit of both the dismantlement program and our commitment to ensuring a safe, secure, and reliable stockpile, we must have the necessary plans in place to provide a rapid response in the event of a nuclear weapon accident. While the occurrence is extremely unlikely, we are prepared to effectively mitigate the consequences of an accident. We are in the initial planning stages for a full field training exercise, where DOE will be in charge of command and control as well as provide the technical expertise necessary to resolve the accident. This exercise is scheduled for mid-1997.

Further, as result of the breakup of the Soviet Union and our aggressive stance to curb the development of weapons of mass destruction, the Department plays a vitally important support role in combating acts of nuclear terrorism, through its Nuclear Emergency Search Team (NEST). NEST provides the operational and technical expertise to the Federal Bureau of Investigation in the United States, and supports the State Department in a similar manner overseas. We have vigorously pursued bringing the program up to present day standards necessary, based on the available intelligence, to counter the current nuclear threat and trends in these activities. Our present and near-term activities include continuance of a rigorous training program and pursuing improved search, device assessment and disablement capabilities.

TRITIUM SUPPLY

An integral part of ensuring confidence in the stockpile is providing an adequate supply of tritium, a radioactive gas required for all U.S. nuclear weapons to operate as designed. Tritium, with a half life of 12.3 years, decays at a rate of 5.5 percent per annum. To meet current stockpile requirements, the Department is recycling tritium from dismantled weapons. A new tritium production source will be needed by the year 2005 to maintain the START I stockpile, and the associated 5-year tritium reserve, until full ratification and entry into force of the START II Agreement. The current supply of tritium is sufficient to meet the START II stockpile, and the associated 5 year tritium reserve, until 2011, as given in last year's testimony.

Last year, the Department completed work on the Tritium Supply and Recycling Programmatic Environmental Impact Statement. On December 6, 1995, the Secretary issued the Record of Decision in which the Department outlined a dual track strategy for assuring a safe, reliable source of tritium to meet national security requirements. One track will investigate the purchase of a commercial reactor or irradiation services. The other track will develop and test accelerator production of tritium. The Department has requested $100 million in the fiscal year 1997 budget to pursue both alternatives. By 1998, one of these alternatives will be selected to become the primary tritium production method. The other, if determined to be feasible and practical, could become an assured backup capability.

There are no difficult technical issues associated with the production of tritium in a light water reactor but there are regulatory and licensing uncertainties. Tritium producing targets for use in light water reactors were developed and tested several years ago but work on the target development program was suspended by Congress in 1992. During the past several months, the Department has revived this effort. While additional target qualification studies are needed to support regulatory and owner approval for their use in commercial reactors, the work already accomplished has demonstrated that the target will work extremely well in light water reactors.

Recently, the Department invited expressions of interest from electric utility companies owning commercial nuclear facilities to determine their preliminary level of interest in either selling a reactor or irradiation services to the Department for tritium production. The response to that invitation has been very encouraging, and we will soon be developing a formal solicitation of proposals for the sale of facilities or services to the Department to make tritium. In addition, within the next few weeks, the Department and the Nuclear Regulatory Commission (NRC) will conclude the development of a Memorandum of Understanding governing the interaction between the two agencies for target qualification and NRC reactor licensing activities.

Technical activities in fiscal year 1997 for the commercial reactor approach will include target testing to support qualification, target fabrication demonstrations to support target procurement, and extraction process development to support construction and upgrade of the Savannah River tritium facilities. Initial confirmatory target testing in commercial reactors is planned for late fiscal year 1997 as is the conditional selection of a reactor or reactors which the Department would use to meet tritium requirements.

The accelerator alternative has comparatively minor nonproliferation and regulatory concerns and requires no technological breakthroughs. However, several features and portions of the technology need to be demonstrated at production power levels. The design choices (e.g. proton energy, power requirements, size of the plant, and accelerator components) will only affect the cost, reliability, and maintainability of the system. The project includes a development effort to select between technical alternatives, testing to establish performance and reliability, and the use of industry for conceptual and engineering design and, if built, construction. These efforts will narrow the cost uncertainty range. The Savannah River Site will be the location of the accelerator if a decision is made to proceed with construction.

Accelerator production of tritium activities in fiscal year 1997 will focus on developmental engineering and component qualification to establish baseline design of the accelerator components. Most of these activities will be done by or under the technical direction of Los Alamos National Laboratory. During this year, the prime contractor for the APT production facility will complete a Conceptual Design Report (CDR), which will establish baseline design and greatly narrow the cost uncertainty.

This report would also provide a basis for requesting approval to begin engineering design in fiscal year 1998.

STOCKPILE STEWARDSHIP

In the past, nuclear testing filled the gaps in the basic understanding of complex physics phenomena and provided high confidence in the certification of nuclear safety and performance. Existing tools which were used in conjunction with nuclear testing are inadequate if used alone. Assessment of stockpile problems and certification of repairs or replacements of nuclear components in the future will have to rely on improvements to these tools. Science-based stockpile stewardship will focus on obtaining more accurate and complete scientific understanding and experimental data, developing advanced computer simulations, and validating new tools using past nuclear data and new experimental data.

The key to the success of the Stockpile Stewardship and Management Program are the three weapons laboratories and their core intellectual and technical competencies. On September 25, 1995, President Clinton concluded that the "vitality of all three DOE nuclear weapons laboratories [is] essential and directed DOE to maintain nuclear weapons responsibilities and capabilities adequate to support science-based stockpile stewardship." The competencies of the weapons laboratories embody more than 50 years of knowledge and experience that cannot be found anywhere else in the United States. The science and engineering technology base at the laboratories is responsible for meeting all technical requirements for U.S. nuclear weapons. The personnel at these laboratories currently perform the basic research, design, system engineering, development testing, reliability assessment, and certification of nuclear performance using existing experimental facilities and computational capabilities. In addition, they determine and control all technical specifications that are used by the industrial base for manufacturing and surveillance operations and for maintenance operations conducted by DOD. Data from these operations is provided to the weapon laboratories for assessment and technical resolution of performance and safety problems.

Because there is no absolute guarantee that the initiatives discussed below will provide the capabilities to ensure the safety and security of the stockpile without underground nuclear testing, the United States will maintain the capability to conduct nuclear testing at the Nevada Test Site (NTS). The Department will also maintain the necessary technical capabilities at the weapons laboratories to design and conduct such tests.

ADVANCED EXPERIMENTAL CAPABILITIES

The National Ignition Facility (NIF) is being designed to produce, for the first time in a laboratory setting, conditions of temperature and density of matter close to those that occur in the detonation of nuclear weapons. The NIF's 192 beam laser with 50 times more energy than any existing laser is intended to be capable of compressing a tiny capsule of hydrogen isotopes to pressures 100 billion times earth's atmosphere and at temperatures hotter than the center of the sun. Nuclear fusion, that occurs in stars and weapons, is predicted to occur in the tiny NIF target. The ability to study the behavior of matter and the transfer of energy and radiation under these conditions is key to understanding the basic physics of nuclear weapons and predicting their performance without underground nuclear testing. Experiments at the NIF could test the validity of computer-based predictions and demonstrate how aged or changed materials in weapons could behave under these unique conditions. The challenges and research opportunities at the NIF would attract world-class scientists and engineers, thus help ensure that the Nation's national security challenges could be addressed by laboratory experts second to none.

Recently, the inertial confinement fusion program and its technical basis for the NIF were favorably reviewed by the Inertial Confinement Fusion Advisory Committee, and the relationship between stockpile stewardship and the NIF was specifically and positively endorsed by the JASON's. During the past year, the Office of Arms Control and Nonproliferation of DOE completed public hearings and a thorough study on the "Issue of the NIF and Nonproliferation". In December 1995 Secretary O'Leary determined that the construction of the NIF supports the nuclear nonproliferation objectives of the United States.

Construction of the NIF is part of the stockpile stewardship preferred alternative in the recently released Draft PEIS for Stockpile Stewardship and Management. The environmental analysis concerning NIF in the final PEIS will be sufficient for approving its construction and operation. The final decision on location of the NIF will not occur until the Record of Decision later this summer.

Title I design activity is now underway and will provide cost estimates on the project baseline in the fall of 1996. The fiscal year 1997 budget request of $191 million will provide funds to prepare an industrial component fabrication capability and to complete Title II, site-specific, detailed construction design. This work will provide the basis for a construction decision by the Administration in mid-1997.

Current hydrodynamic testing facilities, the Pulsed High Explosive Radiographic Machine Emitting X-rays (PHERMEX) at the Los Alamos National Laboratory (LANL) and the Flash X-Ray facility (FXR) at Lawrence Livermore National Laboratory (LLNL), were adequate to meet the challenges of stockpile stewardship in conjunction with nuclear testing. In the absence of nuclear testing, however, more capable hydrodynamic testing facilities will be required. The Dual Axis Radiographic Hydrodynamic Test facility (DARHT) planned for construction at LANL is the first such facility. Through its dual-axis, multi-time viewing capability, it will provide crucial experimental data on many of the systems in the stockpile and hence will directly support performance and safety revalidation, enhanced surveillance, and an improved predictive capability. Furthermore as the most capable hydrodynamic testing facility in the complex, DARHT will play a central role in developing advanced technologies for a next-generation Advanced Hydro test Facility.

Construction of DARHT was enjoined by a Federal Court order in January 1995, pending completion and judicial review of an Environmental Impact Statement (EIS) and associated Record of Decision (ROD). The EIS was completed in August 1995 and the ROD issued in October 1995. A motion to dissolve the injunction was filed subsequently by the Department of Justice, but the issue remains before the court at this time. The ROD states the Department's intention to finish the facility using new and improved technology as appropriate, and also directs implementation of a phased containment process to reduce by 75 percent the environmental emissions from radiographic hydro testing. The Department, in conjunction with the Department of Justice, has supported this project through the thorough and accelerated completion of the EIS, release of an unclassified environmental impact summary developed from certain classified matter, and an expedited response to the Federal Court's clearance request for three of its staff

The Atlas facility to be located at Los Alamos National Laboratory is also included in the list of new experimental capabilities. The facility provides a pulse power experimental capability to address secondary weapons physics in an energy rich, high energy density environment. The fiscal year 1997 budget includes $15M to allow construction to begin in mid fiscal year 1997.

The Los Alamos Neutron Science Center (LANSCE), while not a new facility, is the most powerful neutron research facility in the world, providing an intense source of pulsed neutrons for experiments supporting national security and civilian research. Neutrons are unique and valuable probes of matter on scales ranging from the subatomic to complex materials. At low energies, neutrons are used to study many critical weapons materials issues. At higher energies, neutrons probe the small-scale structure of atomic nuclei, which is important for studies of nuclear weapons processes. At the very highest energies, neutrons can penetrate very thick materials providing unique surveillance capabilities.

LANSCE now has in place a substantial program focused on its key mission in stockpile stewardship. The program is divided into five projects: Advanced Radiography, Weapons Materials, Weapons Nuclear Physics, High-Explosives Characterization, and Weapons Design Physics.

ADVANCED COMPUTER CAPABILITIES

The Accelerated Strategic Computing Initiative (ASCI) is a major part of Defense Program's response to Presidential decisions to halt nuclear weapons tests and pursue a zero-yield Comprehensive Test Ban Treaty. ASCI is designed as a balanced program to accelerate the development of nuclear weapons simulation codes, scientific understanding of weapon behavior, advanced computer platforms, and computing environments and infrastructure. These advances are essential for addressing the challenges of creating the only credible integrated test bed alternative to nuclear testing by using simulations for investigating performance, safety, and reliability of weapons in the nuclear stockpile.

ASCI will build on the core stockpile computing program at the weapons laboratories to develop the applications, computers, and simulation capability for integrated device assessments, and a predictive aging capability to enable a focus on extending the lifetime of the current stockpile. ASCI will work closely with the U.S. computer industry to accelerate companies' technology plans to provide computer systems that far exceed current industry predictions, but ones which are absolutely essential for stockpile stewardship success. ASCI will also engage U.S. universities to work on problems that are critical to physics, materials modeling, and computer science issues that are needed to support the ASCI simulation capabilities.

The simulation of nuclear weapons requires a weapon applications capability improvement of 10,000 to 100,000 times more than the current design capability. ASCI will create multiple industrial research partnerships to accelerate current performance trends in supercomputers. It is not possible to predict which technology path will lead to the best results; indeed, it is unlikely that a single technical approach will serve all application needs. Therefore, the research partnerships must overlap both in time and in technical approach in order to achieve a high payoff with manageable risk, ensure flexibility, and provide a diversity of technical approaches. To accelerate development of computer hardware, software, and communications, an aggressive, integrated, and sustained approach is required which accelerates important computer technology including: advancing the availability of very high performance computers—systems capable of 100's of Teraops (trillions of scientific operations per second), high speed interconnect and encrypted links, and distributed high performance computing (HPC) environments.

ASCI is well underway. In fiscal year 1996, ASCI funded 11 new code or constituent model start-up efforts. Four of these code starts focus directly on increasing the ability of laboratories to predict the integrated performance and safety of weapons through computational means. On August 22, 1995, the Secretary announced the Defense Programs procurement of the world's fastest computer to be delivered to Sandia National Laboratory in December 1996. This computer will run at more than one trillion operations per second and will be dedicated to solving difficult weapons problems. On February 20, 1996, the Department, through Los Alamos and Lawrence Livermore National Laboratories, announced a competition for a follow-on system that will explore a different architecture and will run at three trillion operations per second. In order to support collaboration among ASCI researchers at the three laboratories, the first secure high-speed data network linking the Los Alamos, Sandia and Lawrence Livermore National Laboratories was established on October 20, 1995.

The ASCI program will continue to advance during fiscal year 1997. Significant efforts will be required to continue the development of the codes started in fiscal year 1996. The development plans for these codes include the delivery of initial capabilities needed to certify planned near-term stockpile modifications (e.g., W76 recertification, W88 pit rebuild, and B61 Mod 11.) The development of these codes also requires a significant interface with Defense Programs experimental facilities for verification and validation. Fiscal year 1997 will also see the delivery of the one trillion operations per second computer at Sandia and two development systems for the three trillion operations per second computer at Los Alamos and Lawrence Livermore. Significant modeling, software, and infrastructure work will be required to enable weapons code development and simulation on those computers. The fiscal year 1997 budget requests $122 million for ASCI.

The ASCI can and should proceed rapidly. It will provide continual improvement to our assessment and certification tools in the core stockpile computing and modeling program. For example, recently developed 3–D computer models that can now begin to interpret the complex fluid instabilities near special weapon features, provided essential data on design changes to the W–87 warhead. This data was a significant factor in allowing us to proceed without testing.

TEST READINESS

President Clinton has directed the Department to maintain a basic capability to resume nuclear testing activities at the Nevada Test Site (Safeguard C) should the United States deem it necessary. One of the ways the Department will retain this capability is to conduct, over the next several years, a series of subcritical experiments with nuclear materials at the Nevada Test Site. Two subcritical experiments are planned for fiscal year 1996 and four for fiscal year 1997.

Subcritical experiments use high explosives to create some of the physical conditions, such as pressure and temperature, under which nuclear materials function in a nuclear weapon. These experiments will provide an improved understanding of certain dynamic material properties of plutonium essential for assessing nuclear warhead performance, reliability, and safety. Subcritical experiments will help the U.S. monitor the aging nuclear weapons stockpile, and assist in developing our computational and modeling capabilities by providing essential experimental data on the performance of aging warhead components.

Above ground experimental programs, conducted at the weapons laboratories as a part of the Stockpile Stewardship and Management Program, also contribute to readiness in a variety of ways. This includes experiment planning and pretest preparations, the conduct of the experiments, and reduction and interpretation of post-shot data. Of special importance to test readiness is the area of diagnostics and data acquisition, including the continued development of sensors, recording instrumentation, and data interpretation techniques.

The Nevada Test Site is planning training exercises to practice the skills and functions necessary for nuclear testing which are not involved in either the subcritical experiments or the high explosives experiments which take place at the site. To further preserve a nuclear testing capability at the test site, the processes necessary for conducting nuclear tests are being carefully archived. A core roster of experienced retirees, which could be called up if testing were to be resumed, is also being compiled. The fiscal year 1997 budget has requested $164 million to support Nevada Test Site readiness.

FISCAL YEAR 1997 BUDGET SUMMARY

The following table breaks out the fiscal year 1997 budget requirements for Defense Programs in the Weapons Activities appropriations account. The request of $3.7 billion, reflecting our total obligational authority requirements, is allocated among three major program areas: Stockpile Management ($1.8 billion); Stockpile Stewardship ($1.6 billion); and Program Direction ($0.3 billion). This latter account provides the Federal salaries and related administrative expenses to manage the Stockpile Stewardship and Management Program.

DEFENSE PROGRAMS—FISCAL YEAR 1997 CONGRESSIONAL BUDGET

[In millions of dollars]

	Adjusted fiscal year 1995	Adjusted proposed—fiscal year	
		1996	1997
Stockpile management:			
Base stockpile management	1,438	1,599	1,496
Tritium supply		75	100
Enhanced Surveillance Program		18	40
Radiological/nuclear accident response	69	71	80
Special nuclear materials—surveillance	80	81	83
Subtotal: Stockpile management	1,587	1,844	1,799
Stockpile stewardship:			
Base stockpile stewardship	968	1,008	1,041
Nevada test site readiness	200	183	164
National ignition facility	6	61	191
Accelerated strategic computing initiative		85	122
Education	20	10	10
Technology transfer	214	149	49
Subtotal: Stockpile stewardship	1,408	1,496	1,577
Weapons program direction	365	327	334
Total directed program	3,360	3,667	3,710
Use of prior year balances	−148	−211	
New obligational authority	3,212	3,456	3,710

CONCLUSION

The purpose of the Stockpile Stewardship and Management Program is to ensure the safety and reliability of the nuclear weapons stockpile, without underground testing. Our strategy is based upon a stockpile life extension program that treats each component of each weapons as a limited life component; a dual track approach to ensure a supply of tritium; assessment and certification procedures based upon previous tests; a more detailed scientific understanding of weapon processes and advanced computation; and a downsized, but modernized and flexible production complex. We believe this strategy best fits the nuclear requirements for the post Cold

War era, balancing support for the current stockpile with the research needs for extending stockpile life and maintaining the vitality of the research, production, and testing team.

STATEMENT OF FRED S. CELEC

Senator DOMENICI. Thank you very much, Dr. Reis. We are going to move now to Mr. Celec. You may proceed.

Mr. CELEC. Thank you, Mr. Chairman. May I submit my written statement?

Senator DOMENICI. It will be made a part of the record.

Mr. CELEC. Thank you, sir. My remarks will indeed be brief.

NUCLEAR POSTURE REVIEW

Today, our Nation's stockpile of nuclear weapons is both safe and reliable. The challenge for the Departments of Defense and Energy is to maintain that confidence without nuclear testing. This challenge will become more difficult in the future as our stockpile will soon become the oldest in our Nation's history.

As Dr. Reis mentioned in his statement, the Nuclear Posture Review conducted by the Department of Defense, and approved by the President in September 1994, laid out a number of requirements for the Department of Energy. They were to develop a stockpile surveillance engineering base, to demonstrate the capability to refabricate and certify weapons types in the enduring stockpile, to maintain a science and technology base, and to ensure tritium availability.

In response to the "Nuclear Posture Review," the Department of Energy Stockpile Stewardship and Management Program was developed in close coordination with the Department of Defense. It includes an enhanced surveillance that Dr. Reis alluded to. It will help assure that we can both anticipate and respond to problems in a timely manner. As Dr. Reis said, it is intended to allow the Department of Energy to be able to repair or rebuild certifiable warheads, and for the Department of Defense to accept that certification without underground nuclear testing.

In time, we will have to rebuild our aging stockpile or, at a minimum, replace those weapons that will be consumed by the quality assurance process. To rebuild and certify warheads without nuclear testing is a challenge that exceeds all previous stockpile stewardship taskings.

TRITIUM PRODUCTION

The "Nuclear Posture Review" also called for an assured supply of tritium. The DOE's dual path of using either an accelerator or nuclear reactor for tritium production is endorsed by the joint DOD/DOE Nuclear Weapons Council. This approach offers a prudent course to solve technical problems associated with accelerator-produced tritium and other issues that must be addressed if the nuclear power reactor option is selected.

NEW WEAPON CERTIFICATION PROCESS

In his August 11, 1995, speech, the President directed a new annual certification process, which you mentioned, sir, in your opening remarks. This process requires a survey of the health of the entire nuclear stockpile. This certification will complement the new dual revalidation procedure, which is a detailed technical evaluation of individual warheads during a 2- to 3-year period. These two new reporting processes will assure that we have independent assessments of the condition of the nuclear stockpile by the DOD and by two independent DOE design teams.

As Dr. Reis said in his statement, the President further stated in his August 11 speech that sustained bipartisan support is essential for the program to succeed. Today, the program is receiving the necessary resources and, further, the long-range program mapped out by the Department of Energy is proceeding in the right direction to meet our challenge.

Mr. Chairman and members of the committee, as I said earlier, the stockpile is safe and reliable today. The Department of Defense will continue to work closely with the Department of Energy to establish performance measures for the Stockpile Stewardship and Management Program.

The challenge to maintain an aging stockpile will require increased vigilance by both Departments. We will continue to use the joint DOD/DOE Nuclear Weapons Council to resolve issues involving both Departments as we move forward to meet our common goal of maintaining high confidence in our Nation's nuclear deterrence without nuclear testing.

PREPARED STATEMENT

I will be pleased to accept your questions now or for the record. Thank you very much.

[The statement follows:]

Prepared Statement of Fred S. Celec

Mr. Chairman and members of the Subcommittee, I am honored to have this opportunity to appear before you. I will begin by stating that, today, the stockpile is safe, secure, and reliable. My remarks will focus on the shared responsibility between the Department of Defense (DOD) and the Department of Energy (DOE) to assure high confidence in the Nation's nuclear stockpile. This responsibility presents a new challenge because the nuclear weapons in our stockpile will be retained well beyond their intended design lifetimes without the benefit of underground nuclear testing.

The President recognized this challenge for the nuclear weapons program in his August 11, 1995 speech announcing the U.S. position on a zero yield Comprehensive Test Ban Treaty (CTBT):

> In order for this program to succeed, both the administration and the Congress must provide sustained bipartisan support for the stockpile stewardship program over the next decade and beyond. I am committed to working with the Congress to ensure this support.

The President further directed a new annual certification to assure the safety and reliability of the nuclear stockpile. Finally, he stated that he would be prepared to "exercise our supreme national interest rights under the CTBT in order to conduct whatever testing might be required" if a high level of confidence in the safety or reliability of a nuclear weapon type critical to our deterrent could no longer be certified. With this challenge and commitment in mind, I will review some of the changes in the nuclear weapons program and actions that are being taken to ensure that we—and our potential enemies—continue to have high confidence in the stockpile.

The end of the cold war has wrought significant changes in the nuclear weapons program. Over the last decade, there has been an unprecedented shift in emphasis from design, development, fabrication, and testing of new warheads to refurbishment and life extension of existing warheads. Our stockpile has been reduced in size and diversity of weapon types and, by the end of this fiscal year, the current inventory will become the oldest in U.S. history. Today, we do not have the capability to manufacture replacements for the nuclear warheads that comprise our existing stockpile. We must comply with environmental requirements that are increasingly challenging and litigious. The extended underground test moratorium has evolved into a U.S. position for a zero yield CTBT. Finally, without the traditional yardstick of underground testing, it will become ever more difficult to replace the shrinking cadre of nuclear weapons experts. These changes have forced a shift in strategy at the Departments of Defense and Energy and were addressed in the DOD's Nuclear Posture Review.

Nuclear Posture Review

Approved by the President in September 1994, the Nuclear Posture Review (NPR) continues to provide the DOD policy guidance, force structure and stewardship obligations for the enduring nuclear weapons stockpile. The NPR codified the national policy of "lead and hedge" as our approach to nuclear weapons and the attendant technology infrastructures. The policy of "lead and hedge" simply means that the U.S. will "lead" strategic arms control efforts toward START II or smaller force levels, but retain the ability to "hedge" by returning to START I levels. It is our policy, as part of this strategy, that until START II ratification and entry-into-force, we will draw down and maintain our strategic forces at warhead levels consistent with START I.

Although primarily a DOD document, the NPR contains infrastructure requirements for the Department of Energy to ensure high confidence in the enduring stockpile namely:

—Maintain nuclear weapon capability without underground testing or the production of fissile material;
—Develop a stockpile surveillance engineering base;
—Demonstrate the capability to refabricate and certify weapon types in the enduring stockpile;
—Maintain the capability to design, fabricate, and certify new warheads;
—Maintain a science and technology base;
—Ensure tritium availability, and;
—Accomplish these tasks with no new-design nuclear warhead production.

To meet these requirements, we must provide an environment for the development of nuclear experts who can meet tomorrow's ever increasing challenges. The DOE, with assistance from the DOD, is pursuing a Stockpile Stewardship and Management Program to meet NPR requirements.

Stockpile Stewardship and Management Program (SSMP)

As DOE continues to address NPR infrastructure requirements, the SSMP will provide a structured approach to deal with the lack of underground testing and no new nuclear weapon production. In the past, underground nuclear testing was the ultimate arbiter of the stockpile. Absent this arbiter, the DOE must develop new approaches to ensure high confidence in our nuclear deterrent. The SSMP must include: (1) enhanced surveillance of the stockpile, (2) expanded computational capability such as the Accelerated Strategic Computing Initiative (ASCI), (3) above ground experimental facilities (AGEX), (4) subcritical plutonium experiments at the Nevada Test Site and the ability to return to underground testing, (5) a limited capacity to remanufacture warheads in the existing stockpile, and (6) an assured source for tritium.

The DOD is satisfied with the progress that is being made by the DOE to fulfill its responsibilities as delineated in the NPR, but much remains to be done. For example, The Nuclear Weapons Council (NWC) endorses the DOE's dual track approach of pursuing a commercial light water reactor and accelerator produced tritium (APT) sources, by 2005 and 2007 respectively, but both approaches must overcome technical and institutional challenges. In the case of warhead fabrication, we must first establish a baseline capacity to replace those warheads routinely consumed by the quality assurance and reliability test program (QART) and be capable of expanding this capacity to handle precipitous failures of a type of warhead. We must be ever more vigilant in the stockpile surveillance program and demonstrate that systemic failures can be anticipated with sufficient time to implement corrective actions. The two Departments must continue to certify high confidence in the stockpile without the benefit of underground nuclear testing.

Maintaining High Confidence in An Aging Stockpile

In its effort to improve its corporate expertise in aging nuclear weapons, the DOD is becoming a more active partner with the DOE as warheads and components are assessed and certified. At the individual level, the DOD will increase the number of personnel assigned to the DOE weapon laboratories. The DOD-chaired Project Officers Groups (POG) will take a more active role in warhead assessment while gaining a more detailed understanding of weapon life extension procedures. At the Department level, the joint DOD/DOE Nuclear Weapons Council (NWC) will remain the official forum for resolving inter-Departmental issues between the DOD customer and the DOE supplier of nuclear weapons technology. Additional information briefings will continue to be given to the NWC for review of critical issues involving the health of the nuclear weapons stockpile.

As an example of inter-Departmental cooperation, the DOD and DOE are currently formalizing a new annual certification procedure directed by the President for stockpiled weapons. This challenging task is being led by my office with the support and concurrence of representatives of the Services, the Joint Staff, Strategic Command, DOE, and the DOE laboratories. This new process will include an annual survey of the health of the entire stockpile. It will complement the newly implemented Dual Revalidation process which requires a detailed technical analysis of individual warhead types over a two to three year period. These two new reporting processes will provide timely information on warhead safety and reliability for the NWC.

Issues and the Future

The SSMP will require continuing support from the Departments of Defense and Energy, the Congress, the Administration, and the public. The DOD and DOE must jointly establish methods to measure success of the SSMP at specific intervals. We cannot afford to wait ten to fifteen years to judge the success of the program. DOE must demonstrate the ability to produce tritium and to rebuild all weapons types in the stockpile. Warheads consumed by the surveillance process must be replaced with certified warheads without the benefit of underground nuclear testing, a major undertaking. Most importantly, opportunities must exist to attract, train, and retain world class scientists and engineers who will be the next generation of stockpile stewards. The safety and reliability of our nation's nuclear stockpile demand an experienced cadre of our nation's best.

Since the Manhattan Project, the United States has invested heavily in the development, production, deployment, and maintenance of the national nuclear deterrent. Nuclear weapons, even at significantly reduced levels, remain a core component of future national security strategy. Our DOD/DOE shared responsibility is to ensure high confidence in our nuclear deterrent without underground nuclear testing. This enduring responsibility must have the resources necessary to ensure that the stockpile remains safe and reliable, today and in the future.

Mr. Chairman, members of the committee, absent nuclear testing, the potential for erosion in stockpile confidence will undoubtedly increase with time. To maintain high confidence is a challenge that exceeds those previously faced by our stockpile stewards, but I believe we are on the right track. The President recognized this challenge in his August 11, 1995 speech and remains committed to this challenge. The people in this room and the agencies they represent must meet this daunting requirement. This concludes my statement. I will be pleased to accept your questions now or for the record.

STATEMENT OF JOAN B. ROHLFING

Senator DOMENICI. Thank you very much, Mr. Celec.

Now we are going to hear from you, Ms. Rohlfing. We are glad to have you, and we compliment you on your promotion within the Department. You have a great background. From what we understand, you are doing a good job and we compliment you on that.

NONPROLIFERATION AND NATIONAL SECURITY PROGRAMS

Ms. ROHLFING. Thank you very much, Senator. I appreciate that. I also appreciate the opportunity to appear before the committee this morning and discuss some of the nonproliferation and national security program activities of the Department. Because time is short and you have a very full agenda, I will confine my oral remarks to a brief description of only two of the Department's remarkable accomplishments in the area of nonproliferation over the past year.

MATERIALS PROTECTION, CONTROL, AND ACCOUNTING

Let me start by describing the great progress we have made in helping Russia and other former Soviet states secure their nuclear materials. Last year, my predecessor, Mr. Ken Baker, came before the committee and recounted our success in initiating a program that we call materials protection, control, and accounting. At this time last year, we had completed security upgrades at only one nuclear facility in Russia, a civilian nuclear research facility at the Kurchatov Institute. We were very proud of that work and, as you may remember, we brought poster-sized before and after pictures of our work at the institute to show the committee.

I am pleased to report to you that today, only 1 year later, we have achieved agreements with over 35 locations in the former Soviet Union, and we continue to conclude agreements with additional sites at a rapid pace.

Our hearing would not be complete this morning without at least one graphic—it is a little bit of an eye chart; it is not meant to test your reading capabilities. The point that I would like to make off of this chart is that you can see all of the dots at different locations across the former Soviet Union which represent all of the locations where we have agreements and work is proceeding to secure materials.

Underneath, there are five different sectors, with specific sites underneath each of the sectors, indicating the sectors that we are working with—the civilian ministry of atomic energy [MINATOM], defense, other civilian institutes, non-Russian institutes—not just institutes, I should say, but facilities—as well as a new sector, this year, the naval nuclear fuel sector. We will begin helping to secure materials in the naval nuclear fuel sector this year.

Last year, when we testified before the committee, we had secure——

Senator DOMENICI. Is part of that the lab-to-lab effort?

Ms. ROHLFING. Yes, sir; the lab-to-lab effort underpins virtually all of this.

Senator DOMENICI. Are you asking for an increase in for that program?

Ms. ROHLFING. Yes, sir; we are asking for $25 million over last year's appropriation for activities this year.

Senator DOMENICI. I read the testimony of Charlie Curtis, indicating that among the various programs, that one seemed to be working very well. Is that your testimony?

Ms. ROHLFING. It is, indeed. We are very proud of it. It has really prospered over the last couple of years—the last year in particular. We have added quite a few sites, as this map would indicate. And we are continuing to make very good progress across a range of different sectors.

INDUSTRIAL PARTNERING PROGRAM

Senator DOMENICI. You include in your statement that the private sector partnershipping that is going on also is doing very well. Is that a part of your evaluation or not?

Ms. ROHLFING. That is another program that is also going very well. It is called our Industrial Partnering Program. And the focus of that is, of course, to help secure some of the expertise in the former Soviet Union, of former weapons scientists, engineers, technicians, et cetera, and to help redirect them toward peaceful activities with commercial potential.

Senator DOMENICI. Are you continuing that program in this budget?

Ms. ROHLFING. Yes, we are. And the Department has recommended increasing that budget by $5 million over last year's appropriation.

Senator DOMENICI. Please proceed.

MATERIALS PROTECTION, CONTROL, AND ACCOUNTING

Ms. ROHLFING. Thank you.

Just to conclude, I wanted to offer you a few metrics on the Materials Protection, Control, and Accounting Program. Last year, when we testified before the committee, we had secured approximately 75 kilograms of highly enriched uranium. Since our last testimony, we have secured tons of nuclear materials. And we will improve the security of tens of additional tons by the end of 1996.

These are remarkable achievements by any measure, but even more so in light of the fact that our work with each facility must be done on a negotiated, cooperative basis. Last year, based on a promise of progress and demonstrated success at a single facility, the committee supported our budget request of $70 million for fiscal year 1996.

We believe we have delivered on and even exceeded our commitments to you last year. Based on this demonstrated record of achievement and the anticipation of continued rapid progress, we request the committee support $94.2 million for this program in fiscal year 1997.

NONPROLIFERATION RESEARCH AND DEVELOPMENT

The second nonproliferation highlight that I want to note for you this morning concerns a technological breakthrough the Department achieved last summer. In the Department's nonproliferation R&D programs, we are working to develop technologies that will allow us to detect the covert productions of plutonium and highly enriched uranium by proliferant nations.

A proliferant's most difficult step in developing nuclear weapons is the acquisition of weapons-grade plutonium and uranium. Our ability to detect covert indigenous production of these materials is, therefore, critical to our ability to identify proliferation threats as they are emerging, and essential to developing appropriate responses.

Today, our ability to detect covert materials production is limited by our ability to gain access or proximity to suspect facilities. One of the primary goals of our nonproliferation R&D program, therefore, is to detect the production of these materials remotely, thus eliminating our dependency on access or proximity to a suspect facility.

CALIOPE PROGRAM

At DOE, we are currently pursuing the goal of remote detection in a technology development program called Chemical Analysis by Laser Interrogation of Proliferation Effluents [CALIOPE]. CALIOPE is a sensor system that will detect the presence of chemicals that are indicative of nuclear materials production.

Last summer, using prototype equipment set up in a field environment, we demonstrated the ability to detect some chemicals of interest at significant standoff distance. Based on this breakthrough, we are optimistic that within the next 4 years we will complete technology development and field a new national capability for proliferation detection. CALIOPE is only one example of the important work accomplished through this program. The Department's nonproliferation R&D program is a unique program, dedicated to providing the technologies and systems needed to monitor, detect and characterize proliferant activities worldwide, both cooperatively and noncooperatively.

Your support for the Department's fiscal year 1997 budget request of $195 million for nonproliferation R&D is vital to ensuring the Nation's continued capability to detect and to deter proliferation, verify treaties and respond to future challenges.

Senator DOMENICI. Might I interrupt at this point.

PREPARED STATEMENT

Ms. ROHLFING. Actually, I am finished. So you do not even need to interrupt, Senator. Thank you.

[The statement follows:]

PREPARED STATEMENT OF JOAN B. ROHLFING

Good morning Mr. Chairman and members of the subcommittee. It is my pleasure to address you today as the Director of the Office of Nonproliferation and National Security at the U.S. Department of Energy (DOE).

In recent years, the worldwide proliferation of Weapons of Mass Destruction (WMD) and their missile delivery systems has emerged as one of the most serious dangers confronting the United States. This is a continuing and evolving problem with broad consequences for international security and stability. At least 20 countries—some of them hostile to the United States—already have or may be developing WMD through the acquisition of dual-use technology, indigenous development and production, and/or support from rogue supplier states. Additionally, safety and security of existing nuclear weapons and materials are of increasing concern as economic and social pressures mount in countries such as Russia, Ukraine, Kazakstan and Belarus.

The President has made nonproliferation one of this nation's highest priorities. As the preeminent agency in nuclear materials and weapons technology and protection, the Department of Energy, through the Office of Nonproliferation and National Security, is uniquely suited to provide leadership in national and international efforts to reduce nuclear weapons worldwide; secure and prevent the spread of nuclear materials, technology and expertise; roll back nuclear weapons development programs; avoid proliferation surprise; and respond to nonproliferation emergencies. We particularly draw upon 50 years of science and technology expertise resident throughout the DOE National Laboratory complex to help us achieve these goals.

To reduce the international proliferation threat, the Office of Nonproliferation and National Security is focusing its resources and expertise on the following near-term priorities: (1) securing nuclear materials, technology and expertise in Russia and the Newly Independent States; (2) maintaining effective protection, control and accountability of nuclear materials, technology and expertise in the United States; (3) limiting weapons-usable fissile materials worldwide; (4) ensuring transparent and irreversible reductions of global-nuclear stockpiles; (5) supporting the completion of a Comprehensive Test Ban Treaty in 1996; (6) developing and integrating a program for preventing, detecting and responding to nuclear terrorism and smuggling; (7) controlling nuclear exports; and (8) strengthening the nuclear nonproliferation regime. Through the unique scientific, technical, analytical and operational capabilities of the Department and its National Laboratories, we are working to effectively and efficiently accomplish these near-term priorities by marshaling and integrating our resources and nonproliferation activities.

Some of our most important international activities include: conducting the government-to-government and laboratory-to-laboratory programs of cooperation between U.S. nuclear experts and their counterparts at nuclear facilities and institutes in the former Soviet Union to improve the protection, control and accountability of nuclear materials; assisting Russia and the Newly Independent States in establishing and enhancing nuclear material export control systems; developing advanced technologies and systems to detect the indigenous proliferation of WMD, to enable the verification of arms control treaties, and to facilitate the collection of intelligence information in noncooperative environments; conducting critical operations in cooperation with the Democratic People's Republic of Korea to stabilize and safely store spent nuclear fuel thereby both freezing the North Korean nuclear weapons program and enabling the application of effective International Atomic Energy Agency (IAEA) safeguards; working with the private sector to engage WMD weapons scientists, engineers and technicians in the former Soviet Union in activities which reduce the proliferation threat; and providing technical support of long-term monitoring of Iraqi facilities and other nuclear safeguards and emergency programs of the IAEA. In addition, we are providing unique and in-depth technical, arms-control, intelligence, research and technology expertise as part of the U.S. Government's integrated efforts to conclude negotiations, prepare for entry into force, and implement a CTBT.

The Department's unique technical and analytical capabilities allow us to play a pivotal role in the weapons of mass destruction arenas of the U.S. Intelligence Community. For example, DOE continues to contribute to National Intelligence Estimates and to support the Intelligence Community's Non-Proliferation Center in assessing the activities of emerging nuclear weapons states and terrorist organizations, the activities of states that supply nuclear materials and expertise, and theft and smuggling of nuclear material.

In concert with our international activities, we are responsible for conducting a wide range of domestic activities that support our nonproliferation and national security goals. These activities include: directing a rigorous safeguards and security program for the entire Department of energy complex, thereby ensuring the demonstrated security of our own nuclear materials, technology and expertise; declassifying millions of DOE documents while protecting critical information that has the potential to facilitate the proliferation of weapons of mass destruction; and maintaining a security investigations and reinvestigations program for both Federal and contractor employees of the Department. We also provide technical, analytical, policy and implementation support to the efforts of the nation's policy community to deal with nonproliferation issues.

We also ensure the Department has a robust emergency management and response capability for nonproliferation, energy and nuclear emergencies. Through this program, we provide assistance to other government agencies as well as state, tribal and local governments. Over the past year, we have been providing emergency response experts to assist other foreign governments in reviews of their emergency preparedness plans and capabilities. Through the Partnership for Peace, we have been working with the Departments of State and Defense to assist Russia and the Newly Independent States to plan for and manage energy and radiological emergencies. We also have been working with the International Atomic Energy Agency, International Energy Agency and Arctic Environmental Protection Strategy to develop procedures and support plans for any radiological emergency.

ACCOMPLISHMENTS

Over the past year, we have demonstrated leadership and achieved significant accomplishments in each of our near-term priorities:

—In 1995, our cooperative efforts with Russia and the Newly Independent States in securing nuclear materials, technology and expertise, has protected over 8 tons of direct-use nuclear material with upgrades to 26 facilities' material protection, control and accounting programs. Before the end of 1996, we expect to broaden this effort to over 35 facilities and protect hundreds of tons of plutonium and highly enriched uranium. Additionally, we have begun discussions with the Russian Navy to begin upgrades on their nuclear facilities as well.

—We have engaged nearly two thousand weapons scientists, engineers and technicians on 219 scientific projects at 77 institutes in Russia, Ukraine, Kazakstan and Belarus to prevent a "brain-drain" of these scientists to other countries that would employ them for their own indigenous nuclear weapons programs.

—Our work in North Korea has effectively stopped their indigenous nuclear weapons development program. We have a team currently in country canning the spent fuel to prevent its reprocessing for use in nuclear weapons. Additionally, we have enabled the IAEA to apply international safeguards on the existing nuclear facilities remaining in North Korea.

—We are the sole agency responsible for developing technologies to monitor and verify a Comprehensive Test Ban Treaty. In 1995, we demonstrated significant progress in each of the sensor technologies required to support an international monitoring system: seismic monitoring, radionuclide monitoring, hydroacoustic monitoring, on-site inspection, space-based monitoring, and automated data processing. One particular success is our improvement of the capability to more easily distinguish nuclear explosions from earthquakes—a formidable step toward a greater verification capability.

—In 1994, the Office of Nonproliferation and National Security completed installation of sensors on all Global Positioning Satellites that allow the United States to continuously detect near-earth and atmospheric nuclear explosions and verify treaty compliance worldwide. In 1995 we began developing and deploying the next-generation of sensors to improve our detection capability.

—We have also completed the first comprehensive assessment of all the chemicals that might be used in a nuclear weapons life-cycle. This positions the United States to develop better techniques to detect an indigenous nuclear weapons program.

—Our declassification program has also played an instrumental role in furthering U.S. nonproliferation goals, especially in the initiative to achieve a bilateral agreement with Russia for the exchange of classified information to facilitate confirmation of transparent and irreversible nuclear weapons reductions.

—The Department's safeguards and security functions that were previously spread across the DOE complex are now consolidated within the Office of Nonproliferation and National Security. This achievement is an important step toward creating a responsive and efficient focal point for the Department's nuclear safeguards and security program and providing a national-level technical resource which is capable of fully supporting multilateral nuclear nonproliferation efforts.

LOOK TO THE FUTURE

With our many achievements, there is much work to be done in our long and short term priority areas. We cannot rest on our laurels and expect the global nuclear danger to reduce on its own. The programs of the Office of Nonproliferation and National Security seek to broaden their effects wherever they are able.

In the coming year and a half, the Department will accelerate efforts to provide enhanced materials protection, control and accounting for fissile materials in Russia and the Newly Independent States. We hope to complete all MPC&A improvements in former Soviet Union states outside of Russia by the end of calendar year 1997 (with the majority of work being completed by the end of the fiscal year). In Russia, we intend to expand cooperation to the remaining facilities in the civil nuclear complex while continuing work with facilities related to the nuclear weapon complex. Our efforts with Gosatomnadzor (the Russian agency equivalent to the U.S. Nuclear Regulatory Commission) to design and promote an indigenous MPC&A standards system will ensure that Russian weapons usable material will be protected after the U.S. involvement has been completed. The program as a whole anticipates upgrades at 50 locations in Russia and 13 locations in the Newly Independent States completed by the year 2002.

We are working to improve regional arms control and nonproliferation regimes through programs such as the Cooperative Monitoring Center (CMC) in Albuquerque, New Mexico. At the CMC, we assist political and technical experts from around the world acquire the technology-based tools they need to assess, design, analyze and implement nonproliferation, arms control and other security measures in their own regions. This particularly fosters regional security and lessens the desire for nations to acquire or develop their own weapons of mass destruction. We plan to further expand this effort with states of the Middle East, South Asia, the Koreas, and China.

In 1996, we hope to conclude an Agreement for Cooperation and a Stockpile Data Exchange Agreement with Russia that will allow us to gain insight into warhead dismantlement. These agreements will build confidence between our two nations that our mutual nuclear arms reductions are in fact occurring and irreversible.

These examples show that our activities are truly beneficial. Through our robust and cost-effective programs, we are able to provide leadership in the nonproliferation community, further the nonproliferation goals of the United States, and ensure the national security.

BUDGET REVIEW

The table below summarizes the fiscal year 1997 budget request for the Office of Nonproliferation and National Security from the Energy and Water Development Appropriation as compared with the fiscal year 1996 adjusted appropriation (in thousands).

Appropriation/activity	Fiscal year 1996		Fiscal year 1997
	Appropriated	Comparable	
Program direction[1]	....	$82,809	$95,622
Nonproliferation and verification research and development	$216,142	210,718	194,919
Arms control and nonproliferation	160,964	145,057	181,244
Intelligence	42,336	30,957	29,185
Soviet-designed reactor safety[2]	30,000	....	....
Nuclear safeguards and security	84,395	46,172	47,208
Security investigations	20,000	20,000	22,000
Emergency management	23,321	16,866	16,794
Congressional budgets	577,158	552,579	586,972

[1] The fiscal year 1997 budget request includes a new Program Direction line item as mandated by the Energy and Water Appropriation for fiscal year 1996. This new budget line item provides funding for salaries and benefits, travel, support service contractors and other related expenses associated with the overall management and administration of the Office of Nonproliferation and National Security.

[2] The Soviet Designed Reactor Safety program is run by the Office of Nuclear Energy and funding for this program has been included elsewhere in the Other Defense Activities account.

The Nonproliferation and Verification Research and Development budget request for fiscal year 1997 reflects a savings of $15.3 million. This savings in part is a result of our effort to eliminate duplication between agencies and within DOE, improving coordination between sponsoring agencies, streamlining operations and generating a meaningful cost savings.

The Arms Control and Nonproliferation budget request includes a net increase of $36.1 million concentrated in the area of material protection, control and accounting. This increase is due to the rapid pace of expansion of cooperation with Russian facilities and is important to ensure early safeguarding of weapons usable material at their source. We are also expanding our efforts in the Reduced Enrichment Research and Test Reactor (RERTR) and Industrial Partnering Programs. The increase will also allow us to ensure that the canned spent nuclear fuel in North Korea is not used in an indigenous nuclear development program. Finally, the increase will provide increased analysis and support to: U.S. nuclear arms control policies in the Middle East, Asia and South Asia, nuclear energy security issues in Asia, South Asia and Europe, and U.S. policies to deal with excess civil plutonium.

The Intelligence budget request reflects a modest reduction from fiscal year 1996 resulting from realized efficiencies. The request will provide for timely, high-impact analysis and reporting on the proliferation implications of selected nuclear weapons states' programs, emerging nuclear proliferants, nuclear suppliers, and global impacts to the U.S. energy security.

The Nuclear Safeguards and Security budget request for fiscal year 1997 includes a net increase of slightly over $1 million. Through a requested increase and reprioritization of funding needs, we intend to increase the Classification and Declassification budget by approximately $2.3 million. This increase seeks to further develop advanced automation technology in support of the Declassification Productivity Initiative program and implement Executive Order 12958 on Classified National Security Information.

Finally, the Emergency Management budget request for fiscal year 1997 is unchanged from the fiscal year 1996 appropriation. The change reflected in the summary table above is exclusively a result of consolidation of Program Direction funds.

CONCLUSION

Preventing the spread of weapons of mass destruction is a crucial aspect of our national interest, and the Office of Nonproliferation and National Security is uniquely capable to serve this national interest, especially through the efforts of our national laboratories. Our science and technology base enables us to provide unique solutions to national and international nonproliferation problems. The work we do benefits the nation's security across a broad spectrum: protecting nuclear material in the United States and worldwide; rolling back existing nuclear weapons development programs internationally; ensuring the verifiability of nuclear treaties, especially a CTBT; and responding to energy and nonproliferation emergencies.

NONPROLIFERATION RESEARCH AND DEVELOPMENT

Senator DOMENICI. I was just going to ask that even though you have been singing the praises of some of these programs, I believe that there is an almost $16 million reduction from last year in R&D; is that right? Why would we be reducing this most needed and successful program?

Ms. ROHLFING. Yes, sir; it is a $15 million reduction over last year, much to our own regret. I think the best explanation is it has to do with the realities of the fiscal environment that the Department finds itself in at this time. We are trying to do more with less resources overall. In order to squeeze the program into a smaller budget, we had to restructure the program, stretch some program activities out, and terminate, at least, one program activity.

Senator DOMENICI. Thank you very much.

INTERNATIONAL NUCLEAR SAFETY

Senator Gorton, would you like to inquire or have any comments?

Senator GORTON. Yes; I would ask a question of Ms. Rohlfing. Last year, one of the questions which was of considerable controversy had to do with the international nuclear safety initiative, and you ended up using prior year balances in the foreign aid appropriations bill. For this year, some $66 million has been requested by the administration. How would you use that money? And I think perhaps a more important question than that is, What did we get out of the amount of money that you spent last year, and in the current year?

Ms. ROHLFING. Sir, I am afraid I am not going to be able to give you—I am not the right person to give you—a satisfactory answer on that. Our international nuclear safety programs are run out of the nuclear energy program not the nonproliferation program. And what I would like to do is take that question for the record and ask my colleague, Mr. Terry Lash, to provide an answer.

Senator GORTON. Would you do that?

Ms. ROHLFING. I would be happy to.

Senator GORTON. And would you add to that question, then, one about the PNNL at Hanford? That laboratory is the lead laboratory on the Russian production reactor shutdown Program.

Ms. ROHLFING. Right.

Senator GORTON. And I would like to know how that is structured and what impact that program has had on reducing the threats that we are trying to reduce. Can you get that as well?

Ms. ROHLFING. Certainly, we would be happy to take that question and get you an answer back quickly.

[The information follows:]

INTERNATIONAL NUCLEAR SAFETY AND CHORNOBYL INITIATIVE

The Office of Nuclear Energy, Science, and Technology's (NE) international program is designed to address, through cooperation and technical innovation, serious global problems in the interrelated fields of nuclear safety and nonproliferation. A major program focus is the safety of Soviet-designed nuclear reactors.

Program goals are accomplished through projects to improve the operation, physical condition, and safety culture at nuclear power plants; through the establishment of nuclear safety centers in the United States and countries of the former Soviet Union; and through technical leadership in efforts to cease the production of weapons-grade plutonium in Russia, shut down the Chornobyl nuclear power plant, and promote sound management of nuclear materials and facilities. The program involves engineers, manufacturers, and scientists from many countries, and draws upon NE's expertise in nuclear matters and the Department of Energy's (DOE) national laboratory system to conduct this cooperation.

Through fiscal year 1995, program funding was provided through the Agency for International Development. That funding, and subsequent funding directly to DOE, has resulted in over 150 plant-specific safety projects involving 17 plant sites throughout the former Soviet Union and Eastern Europe, 8 design and scientific institutes, and 21 U.S. commercial companies. Funding for fiscal year 1996 was provided directly to the Department through the Office of Nonproliferation and National Security. In fiscal year 1997, this funding is being requested by NE.

Projects are selected and their success measured according to several criteria. They must be consistent with U.S. nonproliferation and foreign policy and address a priority problem as agreed by U.S. and host country experts. They must be sustainable beyond the duration of project funding; technology transfer is key to meeting this objective. Finally, they must contribute to the nuclear safety or nonproliferation infrastructure of the host country including regulatory bodies.

Since its inception in 1992, DOE's program to improve the safety of Soviet-designed reactors has successfully addressed many concerns associated with the physical condition and safety infrastructure in countries operating these plants. We have established two major training centers, at the Balakovo nuclear power plant in Russia and at the Khmelnitsky nuclear power plant in Ukraine, that have trained more than 250 nuclear plant personnel; we have helped develop more than 100 emergency operating instructions for three different types of Soviet-designed plants; we have supplied emergency power supplies, fire detection and fire fighting equipment, isolation valves, and other safety equipment at 5 of the oldest, least safe nuclear power plants; we have established the capability in Ukraine to manufacture high quality fire doors; and we have supported partnerships between U.S. companies and Russian design institutes to develop simulator technology and carry out safety assessments. The United States has also benefitted from this technical cooperation through access to Russian technological innovations and to Russian markets for nuclear goods and services.

Continued cooperation is needed for permanent improvements in safety attitude and culture to take hold. In fiscal year 1997, we will complete the development of training courses for all operating positions at Soviet-designed nuclear power plants. We will install safety parameter display systems at one nuclear power plant, in addition to five already underway. We will initiate work to improve indigenous capabilities to test and maintain safety systems. We will complete the development of emergency operating instructions and begin their transfer to all Soviet-designed nuclear power plants. We will continue to transfer the capability to conduct safety analyses and to manufacture and maintain critical safety equipment.

The upcoming year will also be a critical time for efforts related to the Chornobyl nuclear power plant, which continues to operate two of its four reactors. Shutdown of these reactors will only be possible once Ukraine is able to address the socio-economic conditions for thousands of workers at the plant and identify resources for replacing the power generated by the remaining reactors and decommissioning the plants and other related activities. The Department contributes in several unique ways to the overall international and U.S. effort to address these issues. We are working with the Ukrainian government to establish an International Research Center on Nuclear Safety, Radioactive Waste, and Radioecology in the Chornobyl region that will develop and maintain a core competency on safety and environmental problems and help redeploy some of the displaced workers from the Chornobyl plant. We also implement projects to ensure the safe interim operation of the plant and tackle the problems of decommissioning and waste management including storage of spent fuel and stabilization of the sarcophagus over destroyed unit 4.

To promote global cooperation on nuclear safety and the open exchange of nuclear safety information, the Department has established an International Nuclear Safety

Center at Argonne National Laboratory. Through this center, we are able to support collaborative research and development with nuclear safety research institutions worldwide. In fiscal year 1996, the center is initiating cooperation with a similar center in Russia. Plans for fiscal year 1997 include initiating cooperating projects with the Ukrainian research center and with organizations in Germany, Japan, France, and Sweden. The U.S. center maintains the information and technical expertise necessary to advise the U.S. government and international bodies on urgent safety and nonproliferation matters, such as the safety prospects for the partially-completed Juragua reactor in Cuba and Russian nuclear exports to Iran.

NUCLEAR SECURITY/RUSSIAN PRODUCTION REACTOR SHUTDOWN PROGRAM

The Department of Energy deals with many matters in which nonproliferation and nuclear safety capabilities are being combined to support important national security goals. The Office of Nuclear Energy, Science and Technology, with assistance from the Department's national laboratories and other DOE program offices, maintains unique expertise related to these programs.

One critical activity is the effort to assist Russia eliminate production of weapons-grade plutonium at its three remaining plutonium production reactors at Tomsk and Krasnoyarsk. The Office of Nuclear Energy, Science and Technology has identified a practical solution that will allow the reactors to continue to supply heat and electricity to the surrounding region but no longer produce weapons-grade plutonium. This approach, known as core conversion, can be implemented by 1999 at a cost of approximately $80 million. Our fiscal year 1997 budget request includes funding to assist with completion of the design, testing, and safety analysis portions of the core conversion effort. Core conversion will significantly reduce threats to our nation by: eliminating the world's last acknowledged source of weapons-grade plutonium; contributing to non-proliferation by reducing the amount of weapons-grade plutonium that must be secured; and reducing the potential of another major reactor accident.

Our efforts to improve nuclear safety at breeder reactors and other nuclear facilities in the former Soviet Union complement the Department's Materials, Protection, Control and Accounting initiatives. At the Aqtau breeder reactor in Kazakhstan, for example, programs to improve safety capabilities have been conducted in concert with programs to improve Materials, Protection, Control and Accounting practices. The Department also implements the U.S. government's only cooperative program with the Russian regulator, Gosatomnadzor, on fuel cycle safety and the safety of research reactors. The Department's efforts to develop spent fuel management programs for countries with Soviet-designed reactors will help reduce the need for reprocessing, another key U.S. nonproliferation objective. Finally, the Department of Energy provides the Department of State and other U.S. government agencies with technical advice and guidance on nuclear matters, such as the construction of a new nuclear power plant in North Korea and Cuba's proposed completion of the Juragua nuclear power plant.

NONPROLIFERATION EFFORTS—CHEMICAL AND BIOLOGICAL WEAPONS

Senator GORTON. Fine, thank you.

Senator DOMENICI. Let me, for the record, make another observation and then I will get into some detailed questions. Actually, from this Senator's standpoint, these nonproliferation activities not only of the Department of Energy, but for America, from my vantage point, is probably one of the most significant activities that we ought to be undertaking.

We lived with a major, major effort in nuclear deterrence, and we had the greatest scientific endeavor we have ever put together to develop nuclear capabilities and then maintain it, so that we had parity—we have never had to use the big nuclear bombs. I think the pendulum has switched in terms of what is going to happen or what could happen in terms of what the biggest danger to our population and the world—that is the proliferation of biological and chemical weapons. And I do not see a major effort on the part of the overall Government of the United States to build the kind of emphasis or awareness that I think that we need.

This is not critical of you, but I actually believe that with the great scientific prowess and technological advances that we have got, the breakthrough that you have just announced—which is just one—it seems to me that we ought to have a very major American effort on nonproliferation. I would think that if we did that, and put all the scientists into some real goal-oriented activities, we may surprise ourselves in a very short period of time on how we might be able to detect chemical or biological weapons, and components—where they are made, and how they get put together. If we could do that, it would seem to me we would be adding dramatically to the safety of our own country and the world.

I do not think $300 million or $400 million is the size of the program for America, nor do I think it is all being done by DOE. To that end, some of us are going to work on a more comprehensive approach. Senator Nunn is now interested. We have a major seminar at Los Alamos, and Harvard University and Los Alamos are putting that together. And you are aware of that.

The ideas will come from the best thinkers in America. What should we put together that directs our greatest scientific potential at this proliferation issue. Would you comment just for a couple of minutes on that, if you would?

CHEMICAL AND BIOLOGICAL WEAPONS

Ms. ROHLFING. Sure, I would be happy to.

I think you rightly point out that we have not yet organized in a focused and well-integrated way across the Federal Government to address the chemical and biological weapons defense issue.

You also point out that the Department of Energy has some expertise that could be brought to bear on this issue. And you are absolutely correct that we have certainly a long history of expertise in the nuclear arena. And because of our work in the nuclear weapons area over the last five decades, we have acquired expertise in the chemical and biological areas. The human genome project at the laboratories was an outgrowth of some of the biological research related to radiation effects.

The program that I mentioned to you in my opening remarks, the CALIOPE Program, detects covert nuclear production through characterizing chemical effluents. And that same technology could be directed to characterize chemical effluents associated with chemical weapons and their precursors.

ACTIVITIES WITH INDIRECT APPLICATION TO CHEM-BIO

So, I believe there is quite a bit that we could do. Our efforts in the nonproliferation R&D area have, up until now, been almost exclusively focused in the nuclear area. We are taking a hard look in the program at how much capability we have, in terms of budget activities, that have indirect applications to the chem-bio problem.

One metric I might give you—I believe, out of our $215 million budget this year, approximately 60 million dollars' worth of that work has indirect applications to the chem-bio problem. In other words, it is not being done directly for chemical and biological weapons defense purposes, but it could be applied; it has some dual application in that area.

In addition, the Department of Energy laboratories are doing about 30 million dollars' worth of work on a work-for-others basis, principally for the Department of Defense in the chemical and biological weapons arena.

I might just conclude by saying that I think that we have had a couple of very troubling incidents—some might describe them as wake-up calls—in the last year: The Oklahoma City bombing and the attack in the Tokyo subway, the chemical attack by the Aum Shinrikyo organization. And that highlights for us our vulnerability as a Nation to terrorist attacks and, in particular, to chemical and biological attacks.

Senator DOMENICI. I was going to comment before we started the questioning that if I direct a question at one of you, any of you feel like you would like to add to the record your thoughts or views—you all have vast and broader experience than the one you are in charge of, and I would just say on the issue that I just raised, if anything comes to your mind that you want to speak to, Dr. Reis or Mr. Celec, please go ahead.

NATIONAL LABORATORIES

Dr. REIS. I would just concur. I think what you are really building on is the strength of the laboratories, the long-term scientific and technical strength, both in terms of detectors and in terms of computation. One of our abilities is to effectively work on nuclear accidents and, indeed, as we are starting to think about nuclear terrorism, really does lie within the strength of the people and the volunteers—frequently volunteers—at the laboratories to participate in the program.

I testified before Senator Nunn and Senator Lugar recently on that, and used our ability, of the nuclear emergency surveillance teams, as a model. He was suggesting for the broader chemical and biological concerns that we have. I think that model is a fair one and a good one and one that we, I am sure, will respond to.

Senator DOMENICI. Well, there are great and unique qualities in the laboratories' capabilities.

Dr. REIS. Along with that, Senator, which you alluded to in the beginning, I think the laboratories work best when they are challenged.

Senator DOMENICI. That is right.

Dr. REIS. When they are challenged on a national problem, where they really do have to bring a focus of a number of different technologies, not just one, but a number of things, working together to do that. That is why one would think of a laboratory as opposed to just a university or a command—the ability to pull that talent together and have scientists and engineers play off each other and play off of other laboratories to do that. I think that is the essence of what we are trying to do in stewardship.

There is no question in my mind that that same spirit and that same enthusiasm can be, if provided with the right type of leadership and support, could make a difference in the nonproliferation problems.

Senator DOMENICI. Mr. Celec, do you have any thoughts on that?

Mr. CELEC. My only observation would be that the Department of Defense, of course, is designed to fight and win wars in a chemical or biological environment. But the equipment and the procedures and the training that the Department of Defense has developed in order to do that is being made available to other agencies of the Federal Government and State and local governments. So that should there be some of these counterterrorism or counterproliferation and that sort of problem, to at least have a step-up on some of the equipment and detectors.

DUAL-AXIS RADIOGRAPHIC HYDRODYNAMIC TEST FACILITY

Senator DOMENICI. Very good. Dr. Reis, you alluded to the DARHT project at Los Alamos.

Dr. REIS. Yes, sir.

Senator DOMENICI. I am aware of the fact that it has been somewhat stalled by a court decision with reference to environmental assessment. Do you know the status as of now?

Dr. REIS. Yes, sir; we had a delay because one of the clerks who had to be cleared—so they could review all the material—much of that material, as you know, is classified—had to drop out. A new person came in. That person has been cleared and is in the process of reviewing all the material as we speak—literally, as we speak. Of course, as you know, we have indicated our concerns. And, beyond that, there is not much more we can do.

Senator DOMENICI. Do I understand, then, that we are proceeding ahead with the court case? There had been some delay because of the processes.

Dr. REIS. That is correct. We are waiting for the judge to get all the information and then, hopefully, lift the injunction. We are ready to get started as soon as we can.

Senator DOMENICI. Would you provide us with some kind of timetable for the record?

Dr. REIS. We would be delighted to do that.

[The information follows:]

DUAL AXIS RADIOGRAPHIC HYDRODYNAMIC TEST FACILITY

On April 16, 1996, Judge Edwin Mechem of the U.S. District Court for the District of New Mexico ruled that the construction of the Dual Axis Radiographic Hydrodynamic Test Facility can resume. The Judge ruled that the Department of Energy has adequately studied the potential environmental impacts of construction and operation of the facility. Because the injunction has been lifted, and assuming that Judge Mechem's decision is not appealed, the legal issues have been addressed. The Department authorized restart of the project on April 24, 1996.

Senator DOMENICI. I think it is important, if we are going to keep convincing the DOD, if we are on our way to these new approaches, we ought to know, at least, where some of the principle technological needs are, in terms of some time line.

Dr. REIS. We will be delighted to do that for the record, sir.

Senator DOMENICI. I am just wondering, in terms of national security and full environmental impact statements, is there any thinking with reference to how these matters might be expedited? Or is this a fact for the court to take into consideration and we have failed to convince them? What is the situation?

Dr. REIS. In that particular case, I think we tried our best. I think we just failed to convince the court that the national security imperative was sufficient to go ahead. As you know, we completed the environmental impact statement for that facility. It was done in record time, and it was really done extraordinarily well. It was done by the people at Los Alamos and the Albuquerque Operations Office. It is really an excellent document.

We actually, during the course of that, made some improvements on the DARHT Program. We are just waiting for the court. Again, unfortunately, we had this problem with the clerks in the court, and there is not much to do about that.

We completed the environmental impact statement in October 1995. We have been working very closely with the Justice Department, of course, who is the lead in that case. But, again, we would be pleased to give you an update on where we are going.

I think that you correctly pointed out, and I deliberately mentioned that in my testimony, the importance of that hydrotesting. Because it is the closest thing to a real simulation of a part of a nuclear explosion process that we can do. The DARHT, in particular, does give one, if you will, the ability to almost take a CAT scan of the implosion process, which is certainly one of the key processes in a nuclear explosion.

FUNDING FOR NEW INITIATIVES

Senator DOMENICI. Now, the committee was concerned last year with the proposed funding levels for the weapons activities, and provided additional funding for 1996, in an effort to reverse the reductions in funding which started in the late 1980's. But we are continually faced with budgetary constraints, and they are there still in the future. We are concerned on what the impact of increased appropriations for special initiatives and new facilities might have on the core activities over the next several years. We want to know about the tradeoff and we want to make sure that we understand it.

Our concern centers on the impact the new programmatic initiatives would have on the overall funding requirements for core stockpile stewardship research programs. So let me just ask, in the 1997 budget for weapons activities, if you do include and indicate that the core programs have real reductions in order to accommodate sizable increases in new initiatives, such as NIF and the accelerated strategic computing initiative [ASCI], is this, in fact, the situation? And are you concerned with the funding level for basic core R&D in technology areas?

Dr. REIS. Senator, I think that you have hit upon the center of the debate in building the Stockpile Stewardship Program for the future and where we are now. As you so eloquently started off saying, this really is a very, very new program. What you end up doing is, thinking about what we are doing now as opposed to what the future is.

As we have debated this program and discussed it, in particular, with our colleagues in the Defense Department, the concern that they have expressed frequently at the highest levels—General Shalikashvili, Secretary Perry—was, well, yes, the stockpile is OK now. The people are here now. If anything goes wrong, we have the cadres, we have the people, we have the ability to do it. We also have the ability, obviously, to go back and ask what about the future.

The comprehensive test ban treaty, if it gets verified and ratified, will be indefinitely. It will not be for a short period of time, then we go out and take a look.

So the key is, how do we invest now and in the future to ensure that we have the people and the abilities to do that? That inevitably leads to some tensions between what you are doing now with the current programs and what you are doing with the future. We have made our best judgment.

There is another tension, as well, between what you invest in the laboratories and then, also, what you invest in the plants and what you invest in the test sites. So, inevitably, there are concerns that you have in any budgetary process. You have to make a judgment.

I believe the directors of the laboratories agree. In fact, I spoke to them yesterday just to be sure that we were on the same team. The directors agree that our investment is focused and balanced properly between what we need to do in the future and what we are doing now.

I do think the key to making this happen, Senator, is to work on real problems, not just to talk about them. It would be nice, using the accelerated strategic computing initiative, if we could make it happen 10 years from now. We could use the NOVA laser, which is a precursor to the national ignition facility, right now, to make this link between weapons and these new facilities, and not wait until they occur or show up sometime in the future. We need to begin to change that whole process.

So, every year, when we talk to the President, which we will be doing—and the Congress—we will be able to certify, yes, the health of the weapons is still as we would hope they would be.

Senator DOMENICI. Mr. Celec.

Mr. CELEC. My only comment, sir, is that the President has developed a lead and hedge strategy, which says we are going to lead toward a START II stockpile, but we are going to hedge and have the ability to return to a START I should that be required. Of course, that has implications for both the Department of Defense and the Department of Energy in maintaining an infrastructure, if you will, to be able to maintain those START I levels.

DEFENSE PROGRAMS FUNDING FOR THE OUT-YEARS

Senator DOMENICI. Well, Dr. Reis and Mr. Celec, let me just talk about a very practical thing. The funding level needed to sustain the programmatic commitments reflected in the 1996 budget, compared with the current out-year budget guidance, has some problems, in that programs cost $4 billion and we have $3.7 billion budgeted. Now, how is that going to work in future years? Where are we going to be?

Dr. REIS. Senator, as part of the submission of the fiscal year 1997 budget, the President has committed, over the next 10 years, to a $4 billion—that in fiscal year 1998 and in the decade beyond—approximately $4 billion some years ago, it was higher some years ago—perhaps a little bit lower—$4 billion per year, as part of our submission for, at least, fiscal year 1997. That is where the $4-billion number comes from.

We are holding to that $4 billion, as we have talked in the past that we will need that money, and we believe that is the commitment that both the President has made and we will need that response from the Congress as well.

Senator DOMENICI. Well, I do not think we understand this the way you do. We understand the request is still $3.7 billion.

Dr. REIS. I can read them to you.

Senator DOMENICI. Why do not you just submit them?

[The information follows:]

DEFENSE PROGRAMS—FIVE YEAR BUDGET PLAN

[In millions of dollars]

	Fiscal year					
	Proposed 1997	1998	1999	2000	2001	2002
Stockpile management:						
Base stockpile management	1,496	1,481	1,615	1,554	1,421	1,316
Tritium supply (APT 2007)	100	292	320	351	574	847
Enhanced Surveillance Program	40	60	60	60	60	60
Radiological/nuclear accident response	80	74	76	76	76	76
SNM—surveillance	83	83	83			
Subtotal: Stockpile management	1,799	1,990	2,154	2,041	2,131	2,299
Stockpile stewardship:						
Base stockpile stewardship	1,041	1,113	1,125	1,115	1,226	1,229
Nevada test site readiness	164	165	165	165	165	165
National ignition facility	191	229	210	223	113	28
Accelerated strategic computing initiative	122	145	145	145	145	145
Education	10	10	10	10	10	
Technology transfer	49	50	50	50	50	
Subtotal: Stockpile stewardship	1,577	1,712	1,705	1,708	1,709	1,567
Weapons program direction	334	334	334	334	334	334
Defense programs (Total directed program)	3,710	4,036	4,193	4,083	4,174	4,200
Changes to DP base program: Offsetting reductions		−623	−1,087	−1,288	−987	−567
Defense programs (net)	3,710	3,413	3,106	2,795	3,187	3,633

Note: The Gross funding level for these programs reflect funding that is commensurate with full support of the Administration's programmatic commitments over time. The offsets shown will come from potential savings within the Department of Energy, possible additional user fees, and potential adjustments to discretionary programs in other agencies.

Dr. REIS. But let me just say it does go up, for example, in fiscal year 1998, up to $4.036 billion.

Senator DOMENICI. The budget profiles that you get from OMB show lower numbers.

Dr. REIS. Yes, sir.

Senator DOMENICI. That is the question that is perplexing us.

Dr. REIS. Well, let me just read to you the words that went along with that, OK. We will get that into the record, and then we will decide how perplexed you are after I read this.

Senator DOMENICI. The words make the commitment, but the numbers are not there.

Dr. REIS. There are two funding levels, as you can see. One is gross and one is net. It says the gross funding levels for these programs reflect funding that is commensurate with full support of the administration's program commitments over time. The offsets will come from potential savings within the Department of Energy, possible additional user fees and potential adjustments to discretionary programs in other agencies.

Senator DOMENICI. I got it. I think what has happened—and I understand it, I think the President has worked very hard to come in with a low defense number—this is part of that skinnying down for low defense numbers. And then, somehow or another, all of the discretionary on domestic is going to be OK this year and then come tumbling down.

But I believe we are going to try very hard up here to have a larger overall defense number than the President. We think it is needed. And maybe in that process we will get some additional allocation directed at 053, which will help us with this problem. We are hopeful we can. There is a lot of activity in the House, which does not want to give anything to the Department of Energy—any increases—even if it is in this very important area. That makes it a bit more difficult. But we will try our best.

Dr. REIS. I wish you Godspeed, Senator.

Senator DOMENICI. And when we end up getting it done, it will not be any thanks to the President's budget, which OMB has put forth. But we will try to get what your words say we need.

Do you have any further comments, Mr. Celec, on that?

Mr. CELEC. No.

Senator DOMENICI. You understand the issue as we described it to you.

Let us talk about the "Nuclear Posture Review," NPR. Could you explain the purpose of this? Have there been any significant changes in policy or guidance from the last approved NPR? And if there have been, would you explain them?

Dr. REIS. Perhaps I could first turn it over to my colleague from the Defense Department. He can describe what it is, and then I could let you know how we are responding to this.

Senator DOMENICI. Fine, Mr. Celec.

Mr. CELEC. I would have to take that for the record, sir. As far as I know, we are not updating that at this point in time. I will take the question for the record.

[The information follows:]

UPDATING THE NUCLEAR POSTURE REVIEW

The main theme of the Nuclear Posture Review is that the United States will lead in the worldwide reduction in the number and type of nuclear weapons, but will also hedge against a resurgent nuclear threat to our nation's security. There have not been significant changes in policy or guidance since the Nuclear Posture Review was implemented, although DOD is currently evaluating future nuclear force structure options in light of developments concerning the START II treaty in Russia.

START I AND START II LEAD/HEDGE STRATEGY

Senator DOMENICI. I want to at least lay these questions out. If you cannot answer them, I want you to answer them for the record. This is an open session, and I understand it, but could you explain or update the committee in an unclassified way on the lead/hedge strategy as it relates to START I and START II and the various force levels? Are you unprepared to do that?

Mr. CELEC. No; I can do that, sir.

Senator DOMENICI. Would you do that, please?

Mr. CELEC. The lead and hedge: We are going to lead, if you will, toward a START II force. But we are going to hedge and be able to return to a START I force should it become necessary. That is basically what the lead and hedge strategy is all about. What that means for both the Department of Defense and the Department of Energy is that we have to maintain the infrastructure to support a START I force, as opposed to a START II force, at least in the short term.

Dr. REIS. Let me add to that, in the sense that when we did our programmatic environmental impact statement, which is currently being reviewed in the public and as required by the law, we look at a number of different force levels. We specifically have, as a part of that, the force level that we will be working toward. What our budget, the $4 billion, responds to, is the hedge aspect, which is maintaining at START I until START II goes into—assuming it goes into force.

So, we will be responding to the full START I numbers. That was perhaps not so clear in previous years, because the President, as I mentioned in my testimony, just this last March, signed a nuclear weapons stockpile memorandum, which was his first memorandum subsequent to the "Nuclear Posture Review," where lead plus hedge was put together with the numbers.

The details of that are classified, but for example, for the tritium and for the infrastructure, in terms of our ability to produce parts and carry out the stockpile life extension program, START I are the numbers where we are ensuring that we design to. We would have the capacity to move to START I and stay at START I, if we wished, by going to several shifts. But the tooling, the facilities, all the things that would be necessary would be there and is part of our stockpile stewardship and management plan. That is the plan that is budgeted for in the outyears.

Senator DOMENICI. Are the totals, the overall totals, of START I weapons and START II weapons, is that number classified?

Dr. REIS. Yes, it is.

Senator DOMENICI. It is. And it is a pretty big difference in numbers. That is why I ask the question. It is obviously in a static program, more or less.

Dr. REIS. From our prospective, much of the difference has to do with what is in the active and inactive Reserves, and since we are required to keep the inactive Reserve. For example, in terms of tritium and parts, it does not represent, in terms of our infrastructure, all that much difference, frankly. Again, it has to do more with the rate at which you are producing things, not the size of the facilities themselves. Again, the details of that are classified, but we would be glad to provide them for you in the appropriate forum.

Senator DOMENICI. I have a series of questions covering several areas. Let me just reiterate, in a general sense, my concern as I see it. I have asked the question before, but I want to state it in my own words to you, Dr. Reis. We are engaged, because of science-based stockpile stewardship, in some very large expenditures and some very expensive facilities and programs to comply with this great challenge, the DARHT, et cetera.

I am very concerned that we do not underfund ongoing programs that have to do with stockpile stewardship and management, because we have not adequately planned the integration of these big-cost items, when they finally hit the budget in full bloom. We talked about it early on, when the three major new add-ons were discussed and how you merge them into your budget planning.

Frankly, I do not think this area—and I am preaching, hopefully, to the choir—I do not think this is one of the areas we ought to be restraining defense expenditures to the maximum. It is a reasonably priced program, considering what we get and its importance to our country's deterrent capability.

I was just thinking, for all we appropriate for the nuclear deterrent—stockpile stewardship—we probably are going to spend as much to buy these new military transport airplanes as we do for this whole program. That is just for one part of what the Air Force buys by way of equipment. So, it is not a program that is horrendously expensive from the standpoint of our taxpayers. And I do not think we ought to shortchange this area and then demand of these scientists and military people, 6 or 8 or 10 years from now, that they do better if we have not made the investment in the capacity to address the problems which the stockpile will face.

So, I am on their side. If a few hundred million dollars is needed, we should find it and insist that the defense budget be increased to support the nuclear deterrent. And I will be an advocate of it. When we get to the point of integrating the funding needs for those expenditures, we do not want that to have an adverse impact on critical operational needs because we are now having to pay for several of these major facilities. Do you understand that?

STOCKPILE STEWARDSHIP AND MANAGEMENT PLAN

Dr. REIS. Yes; I do. Let me tell you, one of the things we have done, facing that specific problem last year, is initiate, with the Department of Defense—and, in fact, as you are aware, the Congress also requested us to put together an integrated plan, which spread out over 5 to 10 years—not just the budget for this year, but show the integrated plan over the next 10 years—how all of this would be basically pulled together.

That document is classified, but the Secretary signed off the letter transmitting that to Congress yesterday. We will be setting up briefings for the staffs and, of course, obviously, for whoever else is interested and are cleared, in detail, going into that issue. We have worked very closely with the Department of Defense, through the members, the Strategic Command, the Air Force, the Navy, the special programs of the Navy, all the users of the weapons.

Of course, it has to integrate not just with the weapons, it obviously has to integrate with the submarine programs, with the bomber programs, and with the missile programs. We have worked, again, with the National Security Council and the Office of Management and Budget, and we have brought in some outside people, academics who have a feeling for this area, as well, to be on our advisory group.

That has been a lot of work, and we have a lot of work yet to go, but I think it is to answer just those sorts of questions. This is not a glorified sandbox. We have to work on real problems. But you do have to make this balance of the concern in the future with the ongoing program. We are looking for that document, plus the annual certification. Because the certification also will be thinking about not just the weapons themselves, but it is the whole health of the stockpile, it is the whole health of the enterprise. We are working, again, together to produce that certification of the stockpile by the end of this summer.

ANNUAL CERTIFICATION OF THE STOCKPILE

Senator DOMENICI. Is that a new scope of certification?

Dr. REIS. That is a new scope of certification, over and above what we have done in the past. And what it does is really very interesting. Because it puts the laboratory directors, as individuals representing institutions, and the commander of the Strategic Command on record for saying yes, we can certify the health. That process will go through the Nuclear Weapons Council and through the Secretary of Energy, the Secretary of Defense, and up to the President as well. And, obviously, that information goes to you, as well, sir.

Senator DOMENICI. So where I early on alluded to the certification, as to the adequacy of the weapons, in terms of safety and reliability, we will now be talking about a broader certification. And I am very pleased to speak of it in that context and to know what it is. Because I think it is better that we get a broader certification.

Dr. REIS. My staff will be meeting, actually at the end of this week, with the advisory group to STRATCOM. I will be going there as well to talk to General Havenger, to get started, really. And, of course, people have been working. The Nuclear Weapons Council has been very active in this, because we do have a deadline of this summer on how that certification process works.

Mr. CELEC. If I just might add, sir. The Department of Defense had similar questions as we put this stockpile plan together, the stewardship plan together. And, indeed, we satisfied ourselves that the costs that the DOE has projected for the program are reasonable and supportable in the outyears.

Senator DOMENICI. Actually, I think it behooves the certifiers on this first venture at a broader certification to be very meticulous and very, very forthright. Because that may be what we need to bridge this gap between $3.7 billion and $4 billion in 1997 and future years. And I am going to urge, when I have any of them as witnesses, that this be a very serious undertaking. I am sure STRATCOM will do that. Admiral Burns is from there, and he is the one that gave this speech about look, it is all so nice——

Dr. REIS. I have had a number of personal conversations—General Havenger, who is the new Commander in Chief. I have had a number of conversations with him personally on this subject. He calls me up once a week. We talk. He will be visiting all of the laboratories. He will be visiting all of these plants and the test sites. He asked a lot of hard questions. I think we are really very pleased to have him onboard. I am sure you will be talking to him in the course of your actions as well.

As you alluded to in your statements, this is not an easy problem. This is really a tough one. This is a real challenge, and there are risks. But we believe the process of certification is where that risk gets essentially assessed. We are trying to bring in as many people as we can to bear on this.

DUAL REVALIDATION

We have never done this before. It is a new program. If I could pick up on what Fred earlier mentioned, we also have a Dual Revalidation Program, where each of the laboratories reviewed the other, for each weapon. It is just not the laboratory which first built that weapon, it is the other laboratory which peer reviews it. They work very hard at uncovering flaws and the fixes. This is, again, something that the Department of Defense insisted upon very strongly. We concurred with that. They are working hand in glove with us to ensure that this program is satisfactory.

TECHNOLOGY TRANSFER

Senator DOMENICI. I am going to submit about 20 questions, and we will ask any of you to comment on them. They will be directed to one or the other of you. But I want to talk 1 minute about the Technology Transfer Program. Frankly, I feel very sad about the administration's budget on technology transfer. We appropriated $150 million last year. I gather that the proposal before us for 1997 is to take that all the way down to $49 million. That is a very sizable reduction.

I believe this program is beginning to work and beginning to work very, very well. I think the CRADA's are getting to be of high, high quality. Both big and small science is taking place. It is taking its place in the sun. It is just not all for Ford Motor Co. It is lots of really exciting technology transfer. And I want to work with you in an effort to see if there is not some way that we can provide for a better continuity than to drop this program from $150 million to $49 million in 1 year.

In the meantime, what we will try to do here is to get better examples for the record of what is going on in the technology transfer area. I have asked our staff if they can get official information from the laboratories and DOE as to how this program is now working or not working, what are some of the successes and failures, and is it changing in scope where it is more apt to be successful.

A couple of things bother me. I will share them with you and then, if you can respond, Dr. Reis, we will conclude the hearing. Frankly, I think to apply too rigid a test of mission orientation, for research, denies the validity of these major laboratories' versatility. Their scientists are very diversified. The actions that they are taking have great scope beyond that which they are doing for, let us say, verification or in the stewardship area, in terms of safety.

I do not think we ought to apply a terribly rigid test, that you cannot get any technology transfer unless it has an exact dual relationship of dual technology or dual science with nuclear efforts. I know some will jump on the issue of why should they be involved in these other things, but I put the question the other way: Why should they not, when you have the best accumulation of scientists in certain fields in the world. Why should not you, say, stop and work on a particular problem. Somebody has to do it particularly when they could make a giant technological breakthrough or a science breakthrough? Those are my concerns regarding the shift in the Technology Transfer Program. Would you comment on that, any of you?

Dr. REIS. Certainly, I will be glad to.

Of course, as you pointed out, we have been under considerable congressional pressure—not from your committee, Senator, but from other committees, who also do not feel as you do, in terms of that, and would prefer to have a much more rigid analysis in terms of what is happening. My understanding, again, is that a number of the items that had been funded through defense programs would be funded by other parts of the Department of Energy, where you did not have this rigid, if you will, criteria on what you do.

I feel—and we certainly will be glad to provide you for the record—that we have had a really remarkable success story in a number of areas, and that many of these, however, really do relate to the defense area. We have not touched on this very much, but one of the important areas that we will be building on in the future is a change in manufacturing processes.

We cannot afford to build things the way that we did in the past, because, one, environmental restrictions are different; many of the materials that we used in the past are no longer in the future. We cannot afford to do things the way we did them in the past. We really do have to look at flexible manufacturing and much more information-dominated situations.

We were looking toward our Technology Transfer Program to pick up much of that background work. Much of the work in the accelerated strategic computing initiative will be pushed in that direction, and will be getting the factories involved on those things for that particular situation. So we certainly have not in any way abandoned the concern that we have to think about the future, and bring ideas, not just from the laboratories out, but from the broader industrial capability back into the system.

Again, I do not have to preach to you about budgetary—you are the last person, I think, that I have to talk to about budgetary realities—but we will provide you with the information that you need, sir.

Senator DOMENICI. Do you have any comments on the subject?

Ms. ROHLFING. No; I do not have anything to add to that. Thank you.

[The information follows:]

TECHNOLOGY PARTNERING PROGRAM

Technologies enabling agile manufacturing (TEAM).—The objective of TEAM is to develop and deploy integrated technologies that enable manufacturing enterprises to bring quality, cost-effective products to market rapidly. To date the participating forty-plus industry, government and academic organizations have developed or enhanced over two dozen design, engineering and manufacturing tools which can be used separately or in an integrated environment at industrial and government design and manufacturing facilities. TEAM is focused on the technology areas of (a) Product Design and Enterprise Concurrency, (b) Virtual Manufacturing, (c) Manufacturing Planning and Control, and (d) Intelligent Closed-Loop Processing, and (e) Integration.

Dataflow (high performance computing).—Dataflow computers are a new, radically different design concept in computers. While conventional computers execute instructions in a sequence specified, dataflow computers execute instructions when the data for processing has arrived. The benefit of dataflow computers is that they are much more efficient parallel machines than conventional computers. The private sector partner had developed a dataflow computer, but they needed a version of the Los Alamos National Laboratory (LANL) developed Monte Carlo Neutron Photon code which has many industrial applications. The partner brought to the project its expertise in the architecture of the dataflow computer and the development of the hardware. It also developed the integration software that enabled the computer to run in the LANL environment. In addition to the private sector uses, there will also be applications in nuclear reactor design, criticality safety, radiation shielding, nuclear safeguards and personnel dosimetry.

Sensitive fiber optic probe for detection of contaminants in ultra clean processing environments.—A small business that develops sensors to detect contaminants in the ultra-clean processing environment in large-scale, integrated circuit manufacturing plants, had developed a proprietary, laser-based sensor for detecting parts per billion contaminants in gas-phase processes. When the company's representatives observed the work being done at Los Alamos National Laboratory (LANL) on a simple, sensitive, fiber optic interferometer being developed to detect nuclear spins for a life sciences project, it expressed interest in the potential for developing a sensor to detect contaminants in ultra-clean processing for integrated circuit manufacturing. After the initial collaboration, it appeared a priority should be placed on the development of instrumentation and software development for existing instruments. Consequently, LANL was able to help the company with the hardware and operator interfaces for its existing instrument. This work helped the programmers at LANL to implement new applications specifically supporting sensor technology for enhanced surveillance.

Intelligent process control for small-lot manufacturing environments.—Researchers at Sandia National Laboratories (SNL) have put significant effort into the development of automated manufacturing techniques, initially in support of the light machining aspects of small-lot weapons production. In conjunction with a private sector partner, SNL researchers set a goal of developing a sensor-driven system in the braze-paste dispensing system operation. From this effort came the Multi-Axis Seam Tracking (MAST) sensor, a system capable of tracking work-piece surfaces or joint seams. When added to a robotic controller, MAST can adjust path and process offsets, with no human intervention in the manufacturing process. The MAST system is a great improvement over the manual method of applying braze paste and also has the edge on its automated competitors, namely the open-loop systems. The private sector partner, a supplier of the defense industry, has implemented the MAST on its production lines. DOE will benefit because many of the weapon components for which SNL is responsible are produced using these process-control techniques and this system also has potential applications in weapons production.

Neural networks for chemical process control.—Los Alamos National Laboratory (LANL), along with an industrial partner, built a neural network controller for a continuously stirred chemical reactor which is used to create polymer ingredients. The controller senses changes within the chemical reactor and adjusts the process parameters to keep it stable. This is done through "model prediction" which means that the controller's sensors observe the behavior of the chemical plant and extrapolate future behavior. The new technologies of neural networks and adaptive computation provide a basis for the development of such a control scheme. Since the chemical process in question is not completely stable, only this kind of real-time device could respond to the changing conditions quickly enough. The DOE weapons complex has similar problems in the development of new chemical processes that provide improved accountability for nuclear weapons and reduced environmental impact. Immediate implementation of this technology is evident by the installation of the controller in a deuterium-tritium separation laboratory at LANL.

Hydroprocessing of crude and residual oil.—Los Alamos National Laboratory (LANL), in partnership with Sandia National Laboratories (SNL) and their industrial partner, have developed methods to improve the hydroprocessing of heavy crude and residual oil. In hydroprocessing, oil is subjected to high temperatures and pressures inside a vessel where hydrogen gas is bubbled through the oil in an attempt to get it to chemically join with the oil. There are many variables that can be used to optimize the process. For example, there is uncertainty as to whether there is good mixing at the necessary pressures and temperatures. Through this project, complete software was developed which animates in three dimension the processes that occur in the vessel. The examination of multi-phase turbulent flows is a fundamental component of the Department's weapons program. This project enabled LANL to increase the understanding of multi phase mixing and the ability to simulate such complex flows using advanced, massively parallel computers. Among Departmental programs that will benefit from this project are the accelerated strategic computing initiative and research into the chemical processes associated with the accelerator-driven transmutation of waste.

Diamond films for microelectronics.—In a cooperative research project with a small company which manufactures advanced devices incorporating synthetic diamond films and coatings using a chemical vapor deposition process, Los Alamos National Laboratory (LANL) scientists have built a new kind of radiation detector using the company's technology. This is the first time such diamond films have been used successfully as part of a microelectronics device. The key benefit to Defense Programs is the availability of a new class of radiation detectors with significantly improved performance. The entire nuclear weapons complex relies on radiation for applications as diverse as process control, device testing and environmental monitoring.

Predictive modeling of heat treatment distortion.—Sandia National Laboratories, Los Alamos National Laboratory and Lawrence Livermore National Laboratory and many member companies of the National Center for Manufacturing Sciences (NCMS) are studying the variations in the heat treatment process and designing a predictive heat treatment simulation tool and model. The team has already successfully modeled the heat treatment process including the effects of the metallurgical processes that actually cause distortion and residual stresses. This success will lead to the development of predictive tools that are currently under development. Of the hundreds of unique components contained in a typical nuclear weapons system, most of the wrought metal parts undergo thermal processes or welding. The tools developed under this research project can be used to make improvements in the manufacture of nuclear weapons components.

MQRC—Characterization of failure analysis for integrated circuits.—Sandia National Laboratories, along with the industrial partner, participated in a project to better understand the issues surrounding integrated circuit (IC) reliability and to analyze and address those issues during chip manufacture, rather than by investigating failures in finished chips. The reliability of a next-generation, 1.0 micron, complementary metal oxide silicon IC production technology, used for manufacturing wafers, was assessed using the laboratory's test systems, reliability models and expertise. The strengths and weaknesses of the production technology were identified and advanced failure analysis provided to analyze problems discovered in production. This project improved the laboratory's ability to ensure the reliability of IC's used in DOE systems and to test reliability test structures and reliability models on a significant volume of IC's.

Specialty metals processing consortium (SMPC).—The U.S. is the world leader in specialty metals (titanium, zirconium, nickel-based superalloys, etc.). European and Pacific Rim industries are investing in R&D at an unprecedented rate, at a time when domestic markets are shrinking dramatically and U.S. industry is least capable of supporting internal R&D. To address this issue, several specialty metal producers and users jointly established the SMPC to perform cooperative, pre-competitive R&D. Under this project, the SMPC is building on Sandia's experience in developing advanced specialty metals processing technologies to support the DOE manufacturing complex. The SMPC program includes several projects, reviewed and approved yearly by the membership, focused on the characterization, understanding, and reduction of specialty metals manufacturing process instabilities. The technologies and expertise developed in this program support a wide range of DOE manufacturing operations. For example, numerical simulations are used for welding and melting, and data acquisition and control system techniques are used in casting and heat treating programs.

Cryogenic materials development.—Los Alamos National Laboratory, along with the industrial partner, has examined and developed advanced materials to improve the performance of the conventional Gifford-McMahon cryogenic cooler. A cryocooler is a component of superconducting microelectronics-based advanced communication systems. The project has shown technical success, facilitating the development of a Gifford-McMahon cryocooler with a demonstrated cooling power of 200 mW at 5 degrees K. This improvement in commercial cryocooler performance is an important step toward the use of superconducting electronics for digital communications. DOE/Defense Programs could benefit from the use of ultra-fast superconducting microelectronics to enhance instrumentation needed to conduct weapons-related tests.

Automated pulsed laser deposition.—Los Alamos National Laboratory, with an industrial partner, has built, tested and demonstrated a commercially viable automated pulsed laser deposition system for fabrication of high temperature superconducting (HTS) films and buffer layers on both sides of a sapphire wafer. The sapphire wafer is a low loss substrate that can be made in large sizes at low cost. This new technology can provide a wider range of materials with which to build new electronic devices. This project has also contributed to the development of coating technologies used in the manufacture of critical components of the weapon physics package.

Computer controlled precision optical polishing.—Los Alamos National Laboratory, with the industrial partner, has developed a method for improving diamond turned surfaces by using a polishing attachment on a diamond turning lathe. This post-polishing technique increases surface smoothness and durability and decreases manufacturing costs. This process is being applied to glass materials for use in fabrication of contact lenses, interocular lenses, camera lenses, x-ray telescopes and other imagining applications. Future systems may be expanded to apply to metal appliances. As a result of this project, DOE will be able to purchase machine tools with this improved capability which will enhance the quality of laser components and other instruments used in DOE weapons research.

Intelligent machining of castings.—Sandia National Laboratory, with the industrial partner, developed computer software to be used to generate a 5-axis tool path for grinding turbine blade tips. This process was being done by hand and often caused carpel tunnel syndrome. Application of this software to the grinding process will improve the quality of the surface and reduce cost of rework. Experience gained on this project will improve DOE/DP's capability to manufacture complex parts for the weapons program.

Extreme ultraviolet lithography.—The Defense Programs Laboratories, in partnership with industry, are developing advanced lithography technology designed to help the U.S. recapture the integrated circuit production market. This technology significantly increases the computing power of microprocessors and memory capacity of solid-state memories. As a result of this project, an inexpensive optical metrology tool has been developed which can measure the surface figure of optics with an absolute accuracy an order of magnitude better than the present state-of-the-art. This will directly lead to greater precision and lower cost optics for the National Ignition Facility and directly benefit DOE's missions in computation-based stockpile stewardship and agile manufacturing.

Plasma source ion implantation.—Los Alamos National Laboratory, in partnership with industry and universities, is co-developing a technology to improve material surface properties for the production of high-strength, light-weight, corrosion-resistant components. In the Plasma Source Ion Implantation Process, the part to be treated is immersed inside an ionized gas called a plasma. High-voltage pulses are applied to the part, and plasma ions are accelerated to, and buy themselves into, the surface of the part. As a result, the surface chemistry of the part is changed, improving its surface properties. This technology is used to extend the service life of manufacturing tools and enables the manufacture of high performance, lightweight products such as automobiles, aerospace systems, prosthetics, optics and electronics. The technology developed on this project provides an opportunity to improve materials for enhanced nuclear weapons safety and for decontaminating surfaces of nuclear processing equipment. Also, through participation in this project, DOE/DP scientists will enhance their plasma physics and pulsed power competencies, which are critical to the DP mission.

ADDITIONAL COMMITTEE QUESTIONS

Senator DOMENICI. How long do we want to give them on the questions? OK, 2 weeks to answer the questions that we submit to you in writing; is that fair enough?

Dr. REIS. Fair enough.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED TO DR. VICTOR REIS

WEAPON ACTIVITIES FUNDING LEVELS

Question. The committee was concerned last year with proposed funding levels for Weapons Activities and provided additional funding for fiscal 1996 in an effort to reverse the reduction in funding, which started in the late 1980's. Faced with budgetary constraints in the foreseeable future, we were also concerned with the impact of increased appropriations for special initiatives and new facilities would have on core activities over the next several years.

Our concern was for the impact these new programmatic initiatives would have on the overall funding requirements for Weapons Activities, and specifically the impact on the core stockpile stewardship and management programs.

The fiscal year 1997 budget for Weapons Activities does indeed indicate that the core programs have real reductions in order to accommodate sizable increases in the new initiatives such as the NIF, and the Accelerated Strategic Computing Initiative (ASCI). Is this in fact the situation?

Answer. You are correct in pointing out that there is a large financial investment required to provide Defense Programs with the physical and intellectual infrastructure needed to provide high confidence in a safe and secure nuclear stockpile without underground nuclear testing. An additional investment will be required to implement our plans for modernizing the weapons complex, as detailed in the Draft Stockpile Stewardship and Management Programmatic Environmental Impact Statement. In total, these investments will require us to maintain a roughly $4 billion a year funding level for the next 10 years. The Department and the Administration are committed to funding these activities and they are accommodated within the funding envelope outlined in our National Security Programs Five Year Budget Plan. Additionally, we are committed to following through with the cost savings initiatives recently identified in reports such as that by the Galvin panel. We expect to maintain the productivity of our core programs within relatively level budgets by aggressively implementing these initiatives.

Question. Are you concerned with the funding level for the basic core R&D and technology areas?

Answer. At this point, the funding level for the basic core R&D and technology areas is adequate to meet the ongoing requirements of the Stockpile Stewardship program. We believe that aggressive pursuit of cost saving initiatives will allow us to maintain the productivity of our core efforts within relatively level budgets.

Question. How does the funding level needed to sustain the programmatic commitments reflected in the 1996 budget compare with the current out year budget guidance?

Answer. The funding level needed to sustain the programmatic commitments reflected in the fiscal year 1996 budget compares favorably with the current outyear budget guidance. When the fiscal year 1996 budget was prepared, Defense Programs was preparing for steeper cuts in the core programs in the out years as our share of the "Vision of Change for America," in order to fulfill commitments and investments in new initiatives to attain Complex 2010—our vision of the weapons complex of the future. The "Vision of Change for America" reductions, although not specifically earmarked for the Weapons Activities account, were placed as offsets against the Atomic Energy Defense Activities appropriation. These offsets totaled $1.2B for fiscal year 1997 and fiscal year 1998 and $1.4B in fiscal year 1999 and fiscal year 2000. During this same time frame, Defense Programs embarked on a significant transition from a capacity-based weapons production enterprise to a capability-based one. We realized that, in order to attain our goals and strategies for achieving Defense Programs' mission change, new, state-of-technology initiatives such as the National Ignition Facility and the Accelerated Strategic Computing Initiative and Enhanced Surveillance Program were necessary investments to greatly enhance our future core programs. We have also undertaken a comprehensive realignment of the Stockpile Stewardship and Management programs, which is discussed in detail in our recent Stockpile Stewardship and Management Plan transmitted to Congress on April 16, 1996. This plan describes our strategies to implement complementary programs and initiatives in both stockpile stewardship and stockpile management to meet the challenges that face the stockpile and the weapons complex of the future.

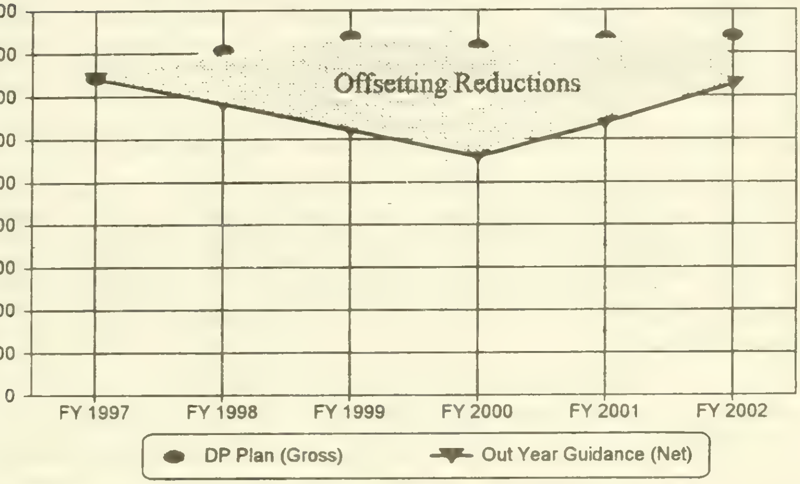
Question. How does DOE and the Executive branch plan to address this shortfall? Is this a problem to be concerned about?

Answer. The Secretary has testified that she will work with the White House, specifically, the Office of Management and Budget, as well as key congressional committees to develop a new out year funding plan to address the situation. Based on the foregoing commitment, this problem is considered serious, but able to be resolved at appropriate levels in the government.

Question. Is it realistic to believe that the difference between the funding required to meet these commitments and the current budget guidance can be made up through savings and other potential adjustments within DOE?

Answer. Part of the difference can be made up from savings from within DOE. While the Secretary has testified that she will work with the Office of Management and Budget, as well as key congressional committees to develop a new out year funding plan to address the situation, the caveat in the President's budget request indicates "The Gross Funding level for these programs reflect funding that is commensurate with full support of the Administration's programmatic commitments over time. The offsets shown will come from potential savings within the Department of Energy, possible additional user fees, and potential adjustments to discretionary programs in other agencies." It has been demonstrated that the Administration and Congress can effectively accomplish mutually agreed upon goals.

Defense Programs Outyear Budget Plan vs. Current Outyear Budget Guidance (Dollars in Millions)



Offsetting Reductions are defined as:

"The Gross Funding level for these programs reflect funding that is commensurate with full support of the Administration's programmatic commitments over time. The offsets shown will come from potential savings within the Department of Energy, possible additional user fees, and potential adjustments to discretionary programs in other agencies." [1]

STOCKPILE STEWARDSHIP AND MANAGEMENT PROGRAM

Question. Mr. Celec, Dr. Reis has laid out DOE's program to maintain the safety and reliability of the U.S. nuclear stockpile. Does the Department of Defense believe this program will provide high confidence in the safety, security, and reliability to ensure DOD mission requirements? If not, what are DOD's concerns?

Answer. Maintenance of a safe and reliable enduring stockpile of nuclear weapons is in the supreme national interest of the United States. The DOE's program of Science Based Stockpile Stewardship is one approach that will address the need for confidence during a moratorium on testing and under a Comprehensive Test Ban Treaty. It may be possible, though by no means easy or certain, to have a stockpile stewardship program capable of furnishing an adequate level of confidence in the enduring stockpile without testing. Our level of confidence will depend on the nature and scope of the problems that arise in the enduring stockpile, the success and support of the stockpile stewardship program itself, and the ability to apply the tools of Stockpile Stewardship and Management to predict and solve these problems. Funding for new facilities required to replace underground testing will continue to place a strain on core programs. Future budgets must include sufficient funds to ensure that programs of specific interest to the DOD, such as refabrication of existing warheads and robust predictive surveillance, are sustained.

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[1] Explanatory asterisk in the President's fiscal year 1997 budget request as applied to the Weapons Activities and Environmental Management accounts in the Atomic Energy Defense Activities appropriation.

Question. Does DOE's budget request maintain the U.S. nuclear deterrent?

Answer. The fiscal year 1997 budget will maintain an adequate level to sustain crucial capabilities. It is vital that functions delineated in the NPR (such as refabrication and certificate of weapons in the enduring stockpile, enhanced surveillance, and weapons design capabilities) be met in the future. Out-year budgets must include sufficient funds to ensure that these vital programs are sustained.

Question. Does DOE's Stockpile Stewardship and Management Program maintain the critical nuclear weapons personnel and skills needed to maintain a safe, secure, and reliable stockpile?

Answer. It is vital that functions delineated in the NPR (such as refabrication and certification of weapons in the enduring stockpile, enhanced surveillance, and weapons design capabilities) be performed by a trained staff of technical experts. One of the primary goals of the Science Based Stockpile Stewardship program is to develop and maintain an expert cadre of nuclear weapons scientists in an intellectually stimulating environment of applied research. As currently envisioned, implementation of the Stockpile Stewardship and Management Program could satisfy this critical requirement, through stimulating research being conducted at world-class facilities.

Question. Do you believe that the Stockpile Stewardship and Management Program will provide the capability to design, fabricate, and certify refabricated/replacement nuclear warheads in the absence of underground testing?

Answer. Maintenance of a safe and reliable enduring stockpile of nuclear weapons is in the supreme national interest of the United States. The DOE's concept of science-based stewardship addresses the need for confidence during a moratorium on testing and under a comprehensive test ban treaty. Our level of confidence will depend on the nature and scope of the problems that arise in the enduring stockpile, the success and support of the stockpile stewardship program itself, and the ability to apply the tools of Stockpile Stewardship and Management to predict and solve these problems.

NUCLEAR WEAPONS STOCKPILE MEMORANDUM

Question. Explain the purpose and status of the Nuclear Weapons Stockpile Memorandum.

Answer. The purpose of the Nuclear Weapons Stockpile Memorandum (NWSM) is to obtain the President's annual approval for the nuclear weapons stockpile. The NWSM is the basis for all Department of Energy stockpile support planning. The Secretaries of Energy and Defense are required to submit a Nuclear Weapons Stockpile Memorandum to the President annually. Upon receipt of the Nuclear Weapons Stockpile Memorandum, a Presidential Decision Directive is issued containing the required nuclear weapons stockpile for the current year and five planning years, along with direction to DOE for maintaining and supporting the stockpile.

The President signed the implementing Presidential Decision Directive for the Fiscal Year 1996–2001 Nuclear Weapons Stockpile Memorandum on March 11, 1996.

Question. Have there been any significant changes in policy or guidance from the last approved NWSM? Please explain these changes, if any.

Answer. This Presidential Decision Directive is the first one issued after the Nuclear Posture Review was completed and, thus, the first to present two force structure options (START I and START II), and detail the dual-track tritium production strategy. The two force structures support the "lead and hedge" policy, allowing the United States the option to "lead" to START II stockpile levels, while retaining the "hedge" to return to START I levels. The dual-track tritium production strategy is DOE's plan to develop both the accelerator production of tritium and the use of commercial light water reactors (purchase of irradiation services or an entire reactor) prior to a Record of Decision in fiscal year 1998.

Question. What key requirements does the NWSM place on DOE and how to meet these requirements?

Answer. The NWSM provides guidance on a number of nuclear weapon issues, most notably weapon dismantlements, nuclear material reserves, and tritium supply. Specific requirements are the size and composition of the stockpile, along with clarification of the "lead and hedge" policy. The Departments of Energy and Defense are given little specific guidance on how to meet the requirements, but are directed to work in cooperation to support the nuclear weapons stockpile.

Question. Since this is an open session, could you explain or update the committee in an unclassified way the "lead/hedge" strategy as it relates to START I and START II force levels?

Answer. The President has declared United States nuclear forces will maintain flexibility to both "hedge" against foreign political reversals (START I) as well as to "lead" through further reductions (START II). Prior to Russian START II ratification (the United States Senate ratified START II on January 26, 1996) and entry into force, the United States will draw down and maintain strategic forces at levels consistent with START I. When START II enters into force, the United States will maintain nuclear weapons in accordance with approved START II levels.

However, the United States will maintain the capability to support a "hedge," in order to return to START I levels in a timely manner. The United States must be satisfied with geopolitical events before changing the requirement for this "hedge." The "hedge" requirement will be periodically reevaluated.

Question. How does a fairly "static" production complex respond to a changeable force level envisioned by the "lead/hedge" strategy?

Answer. The Department of Energy is committed to implement this Presidential direction. The recently published Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management and the Department's fiscal year 1997 Congressional Budget Request support the President's direction. For planning purposes, the nuclear weapons complex infrastructure will be sized to support both a START I and START II stockpile. The Department will not take any actions that would prevent support of a START I stockpile, and will follow Presidential guidance at all times.

Once the move to a START II stockpile has been initiated, the weapons complex infrastructure will be sized to support the smaller stockpile. The Department will maintain the capability to support reactivation to a START I stockpile if necessary.

Question. How does the "lead/hedge" policy impact the tritium requirements?

Answer. The primary source selection will be made in fiscal year 1998. In order to preserve the tritium reserve, newly produced tritium will be needed in fiscal year 2005 with a START I stockpile ("hedge"), and in fiscal year 2011 with a START II stockpile ("lead"). Two options exist for the primary source: (1) new tritium from the use of existing commercial reactors or purchase of irradiation services will be available by fiscal year 2005 and (2) new tritium from the Accelerator Production of Tritium will be available no later than fiscal year 2007.

If tritium is needed by fiscal year 2005 to support a START I stockpile and the accelerator is chosen as the primary source of new tritium, accommodation will be made.

ANNUAL STOCKPILE CERTIFICATION

Question. Now, I understand the President has directed a new annual certification of the stockpile to be undertaken. How is the "new certification" different from the process previously used?

Answer. Judgments about the safety, reliability, and performance of stockpile weapons have been and still are required on a continual basis. DOE currently relies on a number of facilities and a trained and experienced cadre of scientific and technical personnel to make these assessments. The limitations of the current facilities were accepted in the past because underground nuclear testing was available, if necessary, to resolve specific issues. Underground nuclear testing provided the means by which the Department certified the safety, reliability, and performance of all stockpiled weapons. These assessments must now be made without underground nuclear testing. Meeting this challenge will require the use of current technologies as well as the development of new experimental and computational capabilities. The new capabilities will improve our ability to simulate the performance of nuclear weapons and serve as an attraction and training ground for the next generation of nuclear weapons experts.

Question. Why is a "new certification" process needed?

Answer. The Annual Certification process is meant to certify the stockpile is safe and reliable in the absence of underground nuclear testing. The Annual Certification Report is meant to be a broad-based review each year of ongoing efforts and existing documentation; it is not intended as justification for any new program(s). The Secretaries of Defense and Energy must advise the President if serious questions about the nuclear weapons stockpile exist which should be addressed by a resumption of underground nuclear testing.

The nuclear weapons stockpile is aging year-for-year, as no new weapons are planned. Age effects are an ever-increasing concern, so DOE must expand its surveillance, certification, and assessment programs to account for potential new impacts to the stockpile. Certification is only one part of an integrated program to assure the safety and reliability of the stockpile.

STOCKPILE STEWARDSHIP AND MANAGEMENT PROGRAM

Question. I believe the President has indicated that the vitality of the nation's nuclear weapons labs is essential and has directed DOE to maintain nuclear weapons capabilities adequate to support science-based stockpile stewardship. Briefly discuss the key elements of the program and how each contributes to the overall goal of maintaining U.S. nuclear weapons capabilities.

Answer. Within the limits of finite resources and our judgment of the technical capabilities that we can achieve with these resources, the DOE has constructed a Stockpile Stewardship and Management Program (SSMP). This program seeks advances in the understanding of the physics, chemistry, and material issues of importance to the safety, reliability, and performance of nuclear weapons. The SSMP will use past nuclear test data in conjunction with nonnuclear test data, computational modeling, numerical simulation, and advanced experimental facilities and simulators to further our understanding of nuclear weapons. Specifically, the program will develop improved methods to support surveillance of the stockpile as well as continuing the existing surveillance program. The SSMP includes a revalidation program whereby two centers of expertise review each stockpile system on a recurring basis and assures that changes which could reduce the safety or reliability of the nuclear stockpile, will be subjected to a rigorous peer review. The SSMP will provide a capability to manufacture replacement parts for stockpile weapons in a cost effective manner, and if necessary, manufacture entire replacement weapons. The program, by maintaining the required research, development, engineering, and production competencies, will permit DOE to respond to any contingency with respect to the stockpile. This program also provides a new source of tritium on a schedule consistent with the national security requirements.

Question. There are concerns that fundamental R&D weapons activities of the labs and infrastructure needs in the production complex are under funded. What is the appropriate balance between research (Stockpile Stewardship) and production (Stockpile Management) and how does the fiscal year 1997 funding request establish that balance?

Answer. We determine the appropriate balance between stewardship and management through an annual process that includes interacting with customers and stakeholders to determine relative mission priorities and needs—both near- and long-term, balancing these priorities and needs within a realistic, affordable resource envelope with the concurrence of our customers and stakeholders, and finally, maintaining a prudent ability to respond to changing priorities within this envelope. Our confidence in our funding request is based upon the historically demonstrated success of our process as well as continuing customer and stakeholder feedback.

STOCKPILE MANAGEMENT

Question. How does the program in general and the budget request specifically, address concerns regarding the condition of the production complex and the ability to support the production capacities of the Nuclear Posture Review?

Answer. In developing the programs and associated budgets to meet the goals of the Stockpile Stewardship and Management Program, the DOE has assumed the "lead and hedge" strategy articulated in the Nuclear Posture Review and recently endorsed by the President in a Presidential Decision Directive. The program is supportive of the infrastructure requirements cited in the Nuclear Posture Review. The DOE is committed to implement approved requirements. The recently published Draft Programmatic Environmental Impact Statement for Stockpile Stewardship and Management and the Department's fiscal year 1997 Congressional Budget Request both reiterate this policy.

Question. What areas of the production complex are of greatest concern to DOE and DOD?

Answer. The DOD is working closely with DOE to develop a plan that meets all the requirements in the Nuclear Posture Review, including pit production, warhead refabrication, and tritium supply. Thousands of complex parts and many subsystems make up a nuclear weapon, but these areas are perhaps most vital and limited in their availability. We believe the modernized complex will meet our needs, and we will have the Stockpile Stewardship and Management process to voice and monitor our needs.

Question. How does the Stockpile Stewardship/Management program address these concerns?

Answer. The Los Alamos National Laboratory (LANL) is the preferred alternative for a new site for pit production. The Record of Decision for the entire Stockpile Stewardship and Management Program is expected in late summer of 1996. Plutonium fabrication operations are to be functional at the LANL in fiscal year 2003, with a sufficient capacity of about 50 pits per year in single shift operations.

The DOE is pursuing a dual track tritium strategy. The primary source selection will be made in fiscal year 1998. In order to preserve the tritium reserve, newly produced tritium will be needed in fiscal year 2005 with a START I stockpile, and in fiscal year 2011 with a START II stockpile. Two options exist for the primary source: (1) new tritium from the use of existing commercial reactors or purchase of irradiation services will be available by fiscal year 2005 and (2) new tritium from the Accelerator Production of Tritium will be available no later than fiscal year 2007.

If tritium is needed by fiscal year 2005 to support a START I stockpile and the accelerator is chosen as the primary source of new tritium, accommodation will be made.

Question. If for some reason, during the short term, a problem develops with a weapon in the stockpile, is there sufficient capability and capacity to address the problem without adverse risk to national security?

Answer. The risk to national security due to a problem in the stockpile is avoided by diversity of weapon systems and the total number of weapons available. There is virtually no chance of common mode failure that would effect all weapon systems.

In addition, the DOD has retained some warheads designated as "reliability replacements" in an inactive status for other systems in the stockpile with similar missions. This is consistent with the "lead and hedge" policy, in order to maintain maximum flexibility to meet all requirements.

However, our current limitations are that plutonium fabrication operations do not currently exist (they are planned for LANL in the future), and enriched uranium work has been temporarily suspended at the Y–12 Plant. The DOE is working diligently to regain both of these capabilities.

STOCKPILE MANAGEMENT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

Question. The Department recently released the draft Programmatic Environmental Impact Statement (PEIS) which addresses the future capabilities of the production complex. Explain the preferred plan and how it is different from the complex that was in place before production of new weapons ended.

Answer. The preferred alternative for Stockpile Stewardship and Management is to: (1) downsize the existing DOE production facilities (Y–12 Plant, Kansas City Plant, and Pantex Plant) appropriate for future nuclear weapon requirements; (2) re-establish a small capacity plutonium pit capability at Los Alamos National Laboratory; and (3) provide enhanced experimental facilities (National Ignition Facility, Contained Firing Facility, and Atlas Facility) to assist the Department in certifying that nuclear weapons are safe and reliable in the absence of nuclear testing. As part of the preferred alternative, the Nevada Test Site would maintain a readiness to conduct underground nuclear testing, if directed by the President. At the Savannah River Site, tritium facilities would be downsized in accordance with decisions made in December 1995 for the Tritium Programmatic Environmental Impact Statement.

The preferred alternative protects all of the historic capabilities in the area of nuclear weapons competence that are required to maintain the future nuclear weapons stockpile safe and reliable. The preferred alternative is also consistent with, and supportive of, national security policies that would: (1) reduce the nuclear weapons stockpile consistent with Treaty obligations and (2) allow the United States to enter into a Comprehensive Test Ban Treaty.

Question. How will a down-sized complex be able to respond to potential changes in stockpile size under START I or START II requirements?

Answer. One of the primary advantages of downsizing existing production facilities in-place is the flexibility to support either a START I or START II stockpile size. While the Department is moving in the direction of a weapons complex sized for a START II stockpile, which if ratified by the Russians would be the stockpile size in 2003, downsizing would gradually occur between 1998–2003. Current facility capacity plans to be reflected in our fiscal year 1998 budget request would provide a hedge of capacity at relatively low cost ($20 million) to support a START I stockpile size. Consequently, if there is a reversal in fortunes with the START II Treaty, the downsize-in-place strategy also affords the Department with a hedge to support a larger START I stockpile.

ENHANCED SURVEILLANCE PROGRAM

Question. One key element of the Stockpile Stewardship and Management Program is Enhanced Surveillance. The budget request for 1997 includes $40 million under stockpile management to support this element. What is the goal of the Enhanced Surveillance Program?

Answer. The goals of the Enhanced Surveillance Program (ESP) are to develop tools, techniques, and models that will enable us to provide advanced capability to measure, analyze, calculate, and predict the effects of aging on weapons materials and components and to understand these effects as they impact reliability, safety, and performance of weapons as they get older.

Question. How important is it to have an integrated program—one which involves both scientific R&D capabilities of the weapons labs, and the production complex.

Answer. Joint laboratory and production site participation in developing enhanced surveillance methodologies is a cornerstone to the program's success. Since its inception, the core surveillance program has been a joint production site and laboratory effort.

To be successful, the development of new enhanced surveillance methodologies and tools must be performed in a concurrent manner. Integrated enhanced surveillance projects take advantage of the existing site synergy within the core surveillance program. Additionally, program integration ensures that new methodologies are as useful in practice as they are in concept, and it is expected that this approach will reduce the cost and flow time for incorporation of such methodologies. The tight integration of this program forces a constant, complex wide peer review of all Enhanced Surveillance Program efforts, ideas, and accomplishments. This extensive peer review fosters incorporation of new ideas and reduces risks that might occur in a cloistered program.

Question. Normally, the place where the dollars are appropriated controls how these funds are allocated and spent. Will this effort be managed in such a way that recognizes the need for input from the weapons labs?

Answer. Yes. The contributions of the laboratory scientific community and the production site process and quality engineering are baseline requirements in the surveillance process. The scientific community has historically provided surveillance guidance and methodologies, while the production sites have proceduralized the guidance and implemented the methodologies within a controlled environment. Weapons labs are fully represented in the Enhanced Surveillance Steering Committee, where technical objectives and milestones are mapped. The laboratories are also members of all process action teams for each task and research project conducted in this program.

Question. What other funding is requested for fiscal year 1997 that focuses on the enhanced surveillance program? Provide a breakout for the record which should show funding allocation for fiscal year 1996 and the fiscal year 1997 request.

Answer. I would like to provide a table, which shows how the Department plans to allocate the funds for fiscal year 1996 and fiscal year 1997.

[The information follows:]

[In millions of dollars]

	Nuclear primaries	Nuclear secondaries	Nonnuclear components
Fiscal year 1996: [1]			
Los Alamos National Laboratory	4.8	1	
Sandia National Laboratories			5.8
Lawrence Livermore National Laboratory	4.4	1.5	
Kansas City plant	1.7	.5	1.5
Savannah River site	.3	.2	.4
Y–12 plant	.6	2.9	
Pantex plant	3	.2	.1
Total by project area	14.8	6.3	7.8
Fiscal year 1997: [2]			
Los Alamos National Laboratory	8.3	1.7	
Sandia National Laboratories			10
Lawrence Livermore National Laboratory	7.5	2.5	
Kansas City plant	1.4	.4	1.4
Savannah River site	.3	.2	.3
Y–12 plant	.6	2.4	
Pantex plant	2.6	.2	.1

[In millions of dollars]

	Nuclear primaries	Nuclear secondaries	Nonnuclear components
Total by project area	20.7	7.4	11.8

[1] Includes $10 million in prior year money.

[2] Final allocation of fiscal year 1997 funds has not yet been determined and will depend on results and findings of fiscal year 1996 research.

TECHNOLOGY TRANSFER

Question. I see there is a significant reduction in the 1997 funding request for the Technology Transfer program. The 1997 request is $49 million versus $150 million for the current year. What is the rational for such a large reduction below the current year level of funding.

Answer. The Technology Transfer Initiative, started in fiscal year 1991, focussed on providing specific funding to the national laboratories to enable them to share their scientific and engineering expertise with industrial partners for the dual benefits of increasing U.S. industrial competitiveness and maintaining DP core competencies during the time period when the DP mission was in a state of transition to the post-Cold War era. Now that the transition to science based stockpile stewardship and management is well underway, we have, with Congressional support, concluded many of the Technology Transfer Initiative partnerships and redirected this Stewardship funding to critical new initiatives within the core stewardship and management programs. Some Technology Transfer Initiatives partnerships which were less closely coupled to national security mission needs are being transferred to other DOE programs, including Energy Efficiency and Fossil Energy.

In fiscal year 1996, about $80 million of funding which had been requested for Technology Transfer was redirected in the appropriations bill to initiate the ASCI and Enhanced Surveillance programs. The $150 million remaining in fiscal year 1996 will be used to complete many current projects, and reduce outyear mortgages associated with other continuing projects in advanced manufacturing and other areas that make essential contributions to the DP mission.

It is important to emphasize that this decline in funding for the DP Technology Transfer program does not mean that DP is phasing out partnerships with industry. Rather, our positive experience with the Technology Transfer programs at the laboratories will continue to benefit us as we have learned how to effectively utilize industrial partnerships as a valuable resource for DP mission accomplishment.

Question. With such a large part of the Department's technology transfer effort coming from Defense Programs, how will this important work be funded in fiscal year 1997?

Answer. To ensure that important cooperative research will be funded in fiscal year 1997, DOE will conduct a careful review of existing research projects to determine which mission areas they best support. Where possible, DOE will then relocate projects from Defense Programs to other Program Offices which provide a better match of mission and project. For example, the research being performed with the automotive industry in the Partnership for a New Generation of Vehicles has been reassigned to Energy Efficiency (EE), which has the lead for DOE automotive programs. The American Textile Partnership (AMTEX) has also been transferred to EE, consistent with their work on improving industry. Cooperative research that closely supports the weapons program missions will be considered under available funding within the DP technology transfer line, as well as in the core research program.

Question. Can you use other Defense Programs and money to undertake cooperative work?

Answer. Currently our major efforts in partnering with industry are associated with the Accelerated Strategic Computing Initiative. In fiscal year 1996, there will be two industrial partnerships focussed on high end computing. The first partnership, code name Option Red, is the announced R&D contract with INTEL to deliver a 1.8 peak trillion floating point operations per second (TFlop) system by December 1996. Proposals for the second partnership, Option Blue, are currently being developed by the computer industry, and a contract is expected to be awarded by June 1, 1996. These partnerships will continue into fiscal year 1997, with the addition of two to four new partnerships to explore critical technology issues, and an additional Option Blue type partnership in the core stewardship program to provide a third high-end computer for development activities. Industrial partnerships are fundamental to achieving ASCI program objectives of assuring an adequate supply of high-end computing capability and capacity to meet DP's needs for stockpile stewardship in the post-underground nuclear testing era.

There are about 20 other joint DOE-industry programs in the Core Stockpile Stewardship program, most of which are known as "Weapon Support Agreements (WSA)". Stockpile Management has one joint program at the Y–12 Plant.

Question. How will this proposed reduction impact on-going CRADA's?

Answer. This proposed reduction will require the laboratories to re-evaluate their portfolios of on-going CRADA's to determine which projects provide strong support to the weapons program mission. The laboratories will endeavor to fund such projects. Some projects will be reduced in scope, transferred to other funding sources or terminated.

Question. Is sufficient funding requested to meet DOE's commitment under existing agreements?

Answer. As required by the Antideficiency Act, sufficient funding was available for each CRADA before a commitment was made. No new funding is needed to meet commitments under existing agreements.

Question. How will new cooperative technology transfer agreements be handled in the future?

Answer. Future technology transfer agreements will be handled in the following manner: (1) laboratories will be directed to seek and enter into partnerships which will contribute to their mission and (2) partnerships will be funded primarily from the program which they support.

Laboratory personnel will thus rely less on earmarked technology transfer funds and more on programmatic funds for performance of cooperative work with industry. In the case of Defense Programs, a Weapons Support Agreement process has been established through which the laboratory can work with industry on dual benefit research.

NATIONAL IGNITION FACILITY

Question. Dr. Reis, I understand that designing experiments to run on the NIF to prove ignition are challenging and would help attract and retain skilled scientists. But could you explain if or how the NIF will be used to address specific issues related to nuclear weapon primaries and secondaries?

Answer. The National Ignition Facility (NIF) will be able to address weapons processes that occur in the following physical regimes: fusion ignition and boosting in the primary; radiation transport between the primary and the secondary; secondary implosion; secondary ignition, burn, and output; and, nuclear radiation effects on other systems. These processes occur at very high temperatures and pressures and are critical in assessing a weapon's reliability. The NIF will achieve higher temperatures and pressures in a very small volume than any other proposed stockpile stewardship facility. The NIF is also the only facility that will achieve ignition. Some examples of how the NIF will be used to address specific issues related to nuclear weapons primaries and secondaries are described below.

At the highest plasma temperatures and weapons-relevant densities, the NIF experiments can examine the growth and control of hydrodynamic instabilities (how a material moves in response to forces applied), which are important both to ignition of inertial confinement fusion targets and in nuclear weapons performance. Hydrodynamic instabilities ultimately lead to mixing of some quantity of one material with another. This mix can affect both ignition and burn processes. NIF experiments can address how fusion fuels ignite and what helps and what hinders the ignition process. Hydrodynamic consequences of physical features of nuclear weapons have been studied, in part, through experiments at the NOVA laser. The NIF will allow such experiments, important in the certification of weapons, in the physical regimes of density, temperature, and time that occur in weapons.

High-temperature transport of radiation in complex geometries and materials can be examined to test the ability of computer models to predict this transport. Deposition and re-emission of radiation and the general transport problem are complex. The NIF can uniquely enable experiments tailored to study the radiation flow relevant in weapons at the required temperatures.

Output calculations must be done on the inertial fusion ignition targets so that the performance of the target can be properly measured. Again, however, specific targets can be designed to alter the output radiation. These experiments can be used to test the computer codes used to calculate the output of weapons.

The NIF targets, either the basic type for ignition or specially altered ones, will produce copious x-rays, neutrons, gamma rays, and other radiation. These emissions can be used to assess the consequences of nuclear effects in electronic systems or other hardware intentionally exposed to these radiations. The survivability of military hardware subjected to various nuclear effects is an important factor in assuring reliability of that hardware.

Question. What is the primary, direct benefit of the NIF to the weapons program?

Answer. The NIF will create the highest temperatures and pressures attainable in the laboratory, approaching those that occur in nuclear weapons. The high temperature and pressure NIF experiments will reproduce many, but not all, of the complex weapon processes. They will provide data necessary to help evaluate some of the specific changes that occur in weapons due to aging or remanufacture, verify weapons computer models and maintain expertise in high temperature and pressure weapons physics and in test instrumentation and interpretation. NIF experiments do not replace nuclear tests (they cannot simulate all of the interactions between various phenomena) but they can supply data that will contribute to assessment of performance changes in weapons that have been previously tested and certified. Direct use of the laser, without ignition, can examine specific physical processes to help determine their function within a weapon. Fusion ignition integrates some of these processes in a challenging test that directly measures performance of the computational predictions that are also applied to weapons. The specific process measurements and the (partial) performance test are equally important direct benefits to the Stockpile Stewardship program.

Question. How important is NIF to attracting and retaining high quality nuclear scientists?

Answer. The NIF is being designed to produce, for the first time in a laboratory setting, conditions of temperature and density of matter close to those that occur in the detonation of nuclear weapons, that occur in stars, and that release net energy through fusion reactions. The ability to study these processes in the laboratory is important to scientists in nuclear, plasma, atomic, material, astrophysical and energy disciplines. The challenges and research opportunities at the NIF will attract world-class scientists and engineers and will be a key element in ensuring that the Nation's national security challenges can be addressed by laboratory experts second to none.

Question. Would existing or currently planned tools and facilities be sufficient to retain required intellectual and skilled nuclear weapons personnel in order to maintain the U.S. Nuclear deterrent?

Answer. Substantial advances in experimental and computational capabilities are needed to maintain confidence in the safety and performance of the U.S. Stockpile without nuclear testing. These new capabilities are also essential in attracting and sustaining the required intellectual and skilled personnel. Existing capabilities will soon fall short of the needs. The currently planned tools, including the NIF and Accelerated Strategic Computing Initiative, are the appropriate set to assess the stockpile and attract the talent required into the foreseeable future.

Question. Is there sufficient justification for the NIF absent a direct contribution to the problem related to nuclear secondaries?

Answer. The NIF is justified as a unique opportunity to obtain conditions in matter at the highest pressure, density and temperature. We do not know another means to obtain such extreme conditions in the laboratory. With the NIF, it will be possible in the laboratory, for the first time ever, to study radiation physics in a regime close to that of secondaries. In addition, the NIF will address, to some degree, other weapons processes that occur in the following physical regimes: fusion and boosting in the primary; radiation transport between the primary and the secondary; and nuclear radiation effects on other systems. All of these processes occur at conditions that only the NIF will be able to closely approach. Because it will be able to attain these conditions, the NIF will also be valuable for astrophysics and fusion energy. The NIF is strongly justified because it is the only facility that will produce the high energy-density conditions in matter that are directly relevant and important for weapons secondaries as well as the other applications. Finally, as the world's largest optical instrument, the NIF will spur key high-technology industries in the areas of optics, lasers, materials, high-speed instrumentation, semiconductors, and precision manufacturing.

DUAL AXIS RADIOGRAPHIC HYDRODYNAMIC TEST FACILITY

Question. The budget request does not include additional funding in 1997 for the Dual Axis Radiographic Hydrodynamic Test facility (DARHT) in New Mexico due to a court injunction. What is the status of the litigation?

Answer. On April 16, Judge Edwin Mechem of the U.S. District Court for the District of New Mexico ruled that the construction of the DARHT can resume. The Judge ruled that the DOE has adequately studied the potential environmental impacts of construction and operation of the facility.

Question. What are the issues DOE must address and on what timetable?

Answer. Because the injunction has been lifted, and assuming that Judge Mechem's decision is not appealed, the legal issues have been addressed. The Department authorized restart of the project on April 24, 1996.

Question. What are the major milestones on the path to resumption of project construction?

Answer. The major milestone for the resumption of construction was the lifting of the injunction on April 16, 1996.

Question. How has this delay impacted the scope and cost of the DARHT project?

Answer. Recent increases to the DARHT project cost, as noted in the fiscal year 1997 Construction Project Data Sheet (CPDS) for DARHT, reflect changes in the project that DOE made after considering the Environmental Impact Statement and that were announced in DOE's subsequent Record of Decision (ROD). The increases include certain costs to implement phased containment of explosive experiments to mitigate environmental impacts, and to increase the first axis energy to 20 MeV, significantly improving the capability of the facility to support stockpile assessment and certification in the near term (a straightforward and cost-effective change using existing equipment design). Additional increases resulted from stoppage and delay due to the Federal Court injunction. The revised Total Estimated Cost (TEC) and baseline change reflect these increases for the first phase of the project as discussed in the fiscal year 1997 CPDS. The changes are summarized in a table, which I would like to submit for the record:

[The information follows:]

DARHT increase in scope/cost following lifting of injunction fiscal year 1997 construction project data sheet

	Millions
Baseline (w/o contingency)	$75.4
Injunction/EIS delay cost	4.6
20 MeV Accelerator	6.5
Enhanced diagnostics	1.1
Containment (phase 1)	8.6
Unanticipated construction costs	2.6
Subtotal	98.8
Contingency	6.9
Total	105.7

It should be noted that in the ROD, DOE determined its intent to complete both of the two radiographic axes of the facility to support the vital needs of the Department's stockpile stewardship responsibilities. The second axis project has, for some years, been separated as a subsequent phase of the facility and is now explicitly combined with the first phase of the project in the fiscal year 1997 CPDS to form a single line-item for the entire project. Completion of the first phase of the project will provide an initial operating capability; however, DOE intends to operate DARHT in its essential dual-axis configuration. Additional outyear funding will be requested upon determination of the technical requirements and optimum funding profile to complete the entire facility. The injunction prohibited project planning to determine this profile, but now that it has been lifted, planning for completion of the DARHT facility can be expeditiously carried out.

Question. How important is this facility to safety, performance, and reliability of the nuclear weapons stockpile stewardship effort?

Answer. The DARHT facility is very important to the Stockpile Stewardship effort to ensure the safety and reliability of the enduring stockpile. The DARHT represents a significant improvement in capability to probe primary weapons stages over existing radiographic facilities, FXR at Lawrence Livermore National Laboratory and PHERMEX at Los Alamos National Laboratory. The DARHT will provide an expanded hydrotest capability to address both three dimensional issues and time dependence through the use of two orthogonal radiographic machines. The DARHT will have improved resolution that will allow safety and performance assessment for most stockpile primaries. The DARHT will also be useful in investigating key technologies for the Advanced Hydrodynamic Facility (AHF) concept. The increased capability represented by the DARHT and the planned AHF are critical to full implementation of President Clinton's mandate to replace underground testing with Science-Based Stockpile Stewardship to allow safety and performance assessment for all stockpiled weapon systems.

Question. The justification for DARHT indicates that DOE believes that no other facility exists that can provide the information needed regarding nuclear weapons primaries. In light of this, what has or is DOE, DOD or other Executive Branch agencies (DOJ) doing to impress upon the Court the importance and urgency of moving ahead with this critical project?

Answer. Because the injunction has been lifted, there is no need for additional activities to impress the Court with the importance and urgency of moving ahead with this project.

Question. Is there anything Congress can do to help in this regard?

Answer. No, because the injunction has been lifted.

QUESTIONS SUBMITTED TO JOAN B. ROHLFING

NONPROLIFERATION AND NATIONAL SECURITY PROGRAMS

Question. Ms. Rohlfing, what do you see as the most likely proliferation threat to the United States?

Answer. In our judgment, the gravest proliferation threat to the United States would stem from the use of a crude nuclear device in a terrorist attack on the United States or the employment of a nuclear weapon(s) against U.S. forces in a major regional conflict. In both cases, this potential threat has been exacerbated by the increased availability of fissile material and scientific expertise—in terms of nuclear experience and missile technology—in the aftermath of the breakup of the former Soviet Union (FSU).

DOE, working with the Russians, has made significant progress in controlling these materials and helping to stem the brain drain problem, but much work remains to be done and significant quantities of weapons-usable materials remain inadequately protected. At the same time, economic hardship has touched even the once-secure cities and institutions associated with the former Soviet nuclear complex, while interactions between those organizations and other countries have mushroomed, increasing the risk that disaffected employees or profit-seeking officials will "sell out"—with or without official acquiescence. In short, nuclear materials remain vulnerable to externally and internally initiated diversions.

Further, it seems unlikely to us that the potential demand for illicitly acquired materials—on the part of either terrorist organizations or rogue states—will abate in the foreseeable future, despite the recent drop in reported cases of illicit trafficking of such materials. The same transformations that have exposed FSU materials to a higher risk of diversion have undermined FSU states' ability to control smuggling of all kinds in their jurisdictions, particularly along the FSU's southern borders. These borders already serve as transit points for smuggling a variety of goods, including narcotics. They could well become transit routes for nuclear materials, although we have no evidence that such smuggling has yet occurred.

Finally, I would like to make mention of the threat from chemical and biological weapons. In many respects, these weapons might pose a greater potential threat to the United States due to their greater availability in comparison with nuclear materials. By all accounts, the development of a nascent chemical or even biological weapon capability presents fewer obstacles than a nuclear capability and a rogue state could exploit a greater range of dual-use technologies. The national security community is well informed about state programs in chemical and biological weapons and is gaining new knowledge and insights into plans and intentions of terrorist organizations. Much of this information is classified, but we have increased our attention to the risks to the United States posed by these weapons.

Question. What is DOE doing in this budget to reduce the threat?

Answer. Below we have listed proliferation-related activities in DOE's fiscal year 1997 budget, grouped into four general categories: research and development, prevention, analysis, and response. Each activity includes a title, its projected budget for fiscal year 1997, and the name of the DOE office funding it.

Research & Development

Technologies applicable to detection & prevention of materials diversion.—$18,000,000. Office of Research and Development.

Short-turnaround technology applications.—$3,715,000. Office of Energy Intelligence, STP.

Operations Support.—$1,367,000. Office of Energy Intelligence, STP.

Chemical-biological weapons.—The Department has ongoing research and development (R&D) activities with indirect application to the proliferation of chemical and biological weapons. Given our current dual-use expertise and activities, the Department could do more to address this very serious threat. Additional funds directly applied to chemical-biological defense could enable the Department to initiate a technology development program focused on chemical and biological weapons to support the Department of Defense and other national needs, leveraging the Department's significant investment in chemical and biological sciences.

Prevention

Materials protection, control, and accounting (MPC&A) in the former Soviet Union.—$94,200,000. Includes implementation of enhanced MPC&A at numerous facilities; provision of technical support, including training and equipment to national authorities and individual facilities and locations; and regulatory development activities such as licensing and inspection program development and related training. Office of Arms Control and Nonproliferation.

Industrial Partnering Program.—$10 million.[1] Industrial Partnering Program Office.

Analysis

Nuclear intelligence issues.—$3,545,000. Office of Energy Intelligence, Nuclear Nonproliferation Division (NND).

Threat assessment.—$2,800,000. Includes communicated threat credibility assessment program, black market sales and materials trafficking program, and training and information assistance. Office of Emergency Management, Operations Division.

Response

Location, diagnosis, assessment, and disablement of nuclear terrorist devices.—$33,800,000. Defense Programs, Nuclear Emergency Search Team (NEST).

Question. What role does and how important is research and development in addressing this threat?

Answer. Research and development at the Department of Energy plays a significant role in addressing the proliferation threat, supporting not only the Department of Energy (DOE) but agencies across the intelligence, operations, and law enforcement communities. Proliferation-related research and development (R&D) at DOE is directed to improving the U.S. government's ability to prevent the diversion of nuclear materials and weapons, detect proliferation activities of potential concern, and respond to incidents of nuclear theft and terrorism.

Specifically, over the last few years, the Nonproliferation and Verification Research and Development Program has evolved from a program focused on treaty monitoring to one in which a majority of the science and technology work at the national laboratories is dedicated to developing the technologies needed for detecting proliferant nations' indigenous production programs and for detecting and preventing the diversion of weapons-usable materials. This R&D program provides the technology foundation for numerous operational applications, and is developing a wide range of active and passive sensors, from hand-held instruments to airborne and space-based systems.

Complementing this long-term R&D effort is DOE's Special Technologies Program (STP), which seeks out opportunities to apply DOE's extensive technology base to relatively low-cost, quick-turnaround technology development projects in the proliferation arena and elsewhere. STP both funds projects of its own up to the proof-of-concept or field prototype phase, and serves as a gateway into the DOE complex by helping other agencies identify applicable technologies and fund developmental projects. STP's projects address technology requirements with multiple applications—prominent among them nonproliferation and counterproliferation—for operational elements within the intelligence, special operations, and law enforcement communities. In fiscal year 1997, these efforts will focus on specialized detection instruments (including radar, optical, electronic, and acoustic sensors); detection and countermeasures for weapons of mass destruction, both nuclear and chemical; communications with a low probability of detection or interception; and disruption and disablement.

Both programs leverage the Department's historic investment in weapons development and production and basic chemical and biological sciences. Specific technology development projects are closely coordinated with personnel from the civil, military, and intelligence agencies responsible for detecting and countering the proliferation threat.

Finally, under the Industrial Partnering Program (IPP), DOE laboratories are cooperating with Russian institutes to redirect FSU technology and people to peaceful commercial pursuits. Initial R&D cooperation between Russian institutes and DOE laboratories is important to verify commercial potential of the technologies in order to attract U.S. industry interest and investment. Work done under IPP has led to the development of neutron passportization technology allowing better accountability of fissile materials which has been used to improve materials protection, control and accountability at Russian facilities.

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[1] This number represents the fiscal year 1996 appropriation for the Industrial Partnering Program (IPP). It does not include an additional $10 million that has been requested by the Defense Department for redirection from Nunn-Lugar funding to IPP in fiscal year 1996.

NONPROLIFERATION AND NATIONAL SECURITY PROGRAMS

Question. The 1997 budget request for Non-proliferation and Verification R&D is $194.9 million, $15.6 million (−7.5 percent) below the comparable level for the current year. What is the rationale for this at a time when proliferation dangers are increasing and the U.S. is pushing to conclude the Comprehensive Test Ban Treaty?

Answer. The Department recognizes the increasing danger of proliferation and is responsible for many important programs to address this threat, including new, high-priority initiatives such as the Material Protection, Control and Accounting program to improve nuclear material security in the former Soviet Union. Working to address international proliferation issues and further U.S. nonproliferation policies and goals within a constrained fiscal environment, the Department continues to try to do more with less. While the funding requested for the Nonproliferation and Verification Research and Development program in fiscal year 1997 is below that for the current year, the Department fully appreciates the importance of this program's technology development activities to the United States' current and future nonproliferation capabilities. In accordance with the current effort to conclude the Comprehensive Test Ban Treaty (CTBT), the fiscal year 1997 funding request of $194.9 million for Nonproliferation and Verification R&D includes full funding for the technologies associated with the CTBT.

MATERIALS PROTECTION, CONTROL AND ACCOUNTING

Question. The Materials Protection, Control and Accounting program is increasing by 52 percent in 1997 from $45.6 million to $69.3 million. Update the Committee on progress in implementing material control and accounting measures in the Former Soviet Union.

Answer. After a slow start in the early 1990's, nuclear material security cooperation with Russia and the Newly Independent States (NIS) has gained significant momentum over the past two years. The following examples illustrate our recent progress as of early April 1996:

—Over the past two years, the United States, Russia, and the NIS have made, or agreed to make, improvements in nuclear material security at over 35 different locations. This involves about 75 percent of the locations where such material is believed to be stored.

—In the past year alone, U.S. cooperation with Russia and the NIS has improved the security of more than 8 tons of weapons-usable nuclear material—enough for hundreds of nuclear weapons.

—In the past six months, the United States and Russia added 17 new locations—including some large defense facilities—to those scheduled to receive security upgrades.

—In March 1996, all necessary security upgrades were completed at the Latvian Academy of Sciences Nuclear Research Center allowing this facility to be the first moved off of the list of dangerous locations. This follows significant upgrades made at a number of high priority Russian nuclear facilities in 1995.

—By the end of 1996, the United States expects to have made improvements in the security of hundreds of tons of weapon-usable nuclear material in Russia and the NIS.

—In spite of this recent progress, the United States and its partners in Russia and the NIS, are still in the early stages of a multi-year program to improve Materials Protection, Control and Accounting (MPC&A). Only the initial phases of work at many locations recently added to the program will be completed in 1996. MPC&A improvements at these facilities will take several years to complete. In addition, there are a number of facilities in Russia for which agreements for MPC&A cooperation have yet to be reached.

Question. Has upgrade work started at all those sites and facilities planned for accomplishment with 1996 appropriations?

Answer. Planned accomplishments for 1996 appropriations are as follows:

—Continue upgrades at the Kurchatov Institute, Chelybinsk-70, Tomsk-7, Arzamas-16, Obninsk IPPE, Mayak, Podolsk, Dimitrovgrad, and Elekstrostal HEU line in Russia; Aktau, Semey, and Almaty in Kazakstan; Kharkiv and

Kiev in Ukraine; Sosny in Belarus; and nuclear institutes in Latvia, Lithuania, Uzbekistan, and Georgia.

—Begin upgrades at six additional Russian facilities identified through GosAtom Nadzor (GAN) cooperation in October, 1995: Karpov Research and Development Institute of Physics and Chemistry; Institute of Nuclear Physics, Gatchina; Moscow Institute of Physics and Engineering; United Institute of Nuclear research, Dubna; Polytechnic University, Tomsk; and Nikel Combine, Norilsk. Begin upgrades at Sevastopol in Ukraine.

—Begin upgrades at six Minatom facilities identified in the Joint Statement on Control, Accounting, and Physical Protection of Nuclear Materials signed on January 30, 1996, during the sixth meeting of the Gore-Chernomyrdin Commission: Novosibirsk Chemical Concentrated Plant; Beloyarsk NPP Sverdlovsk Branch of the Scientific Research and Design Institute of Power Technology; Khlopin Radium Institute; Beloyarsk NPP; Krasnoyarsk-26; and Severdlovsk-44.

—Provide equipment and training for GAN in support of development of the MPC&A regulatory base in Russia.

—Begin cooperation with Russian Navy fresh fuel storage facilities.

Work has started or is expected to start at all these locations in 1996. In most cases, 1996 appropriations will fund only the initial phases of work which will continue for several years. As work progresses at these locations a better understanding is gained of funding requirements and priorities for 1997 and beyond.

Question. How many additional sites are planned to be upgraded in 1997?

Answer. In 1997 upgrades will continue at many locations in Russia where work began in 1995–96. Negotiations to add additional new sites are ongoing. Based on discussions to date, we are hopeful that work can begin at several Russian naval fresh fuel storage facilities and nuclear weapon serial production facilities. Upgrades that will be completed in 1997 include locations in Belarus, Ukraine, Kazakstan, Uzbekistan, Lithuania, and Georgia. Also during 1997 the first series of Materials Protection, Control and Accounting (MPC&A) training courses will be held at the Russian Methodological and Training Center.

Question. Do you expect any problems in implementation of the upgrades due to lack of appropriate agreements?

Answer. No problems are expected in implementation of Materials Protection, Control and Accounting (MPC&A) upgrades. Agreements reached in 1995 and 1996 have provided opportunities to work at locations in all of the sectors that include weapon-useable fissile material in Russia and the Newly Independent States. The agreements include:

—The original Nunn-Lugar implementing agreements for MPC&A cooperation signed between U.S. Department of Defense and Russia (September 1993), Belarus (June 1995), Ukraine (December 1993), and Kazakhstan (December 1993). The agreements with Russia, Ukraine, and Kazakhstan were all amended in 1995 to add more money for MPC&A cooperation.

—The U.S.-Russian Joint Statement on Protection, Control, and Accounting of Nuclear Materials signed on June 30, 1995 during the fifth meeting of the Gore-Chernomyrdin Commission. This agreement extended U.S. MPC&A cooperation to five locations in the Minatom civil nuclear sector.

—The Agreement Between the Department of Energy of the United States of America and the Federal Nuclear Radiation and Safety Authority of the Russian Federation to Cooperate on National Protection, Control, and Accounting of Nuclear Materials, signed in June 1995.

—A DOE-GAN agreement signed in October, 1995 that provides for joint MPC&A work at six locations in the Russian independent civil nuclear sector.

—The Joint Statement on Guiding Principles of Cooperation Between the Ministry of Atomic Energy of the Russian Federation and the Department of Energy of the United States in the Area of Control, Accountability, and Physical Protection of Nuclear Materials, signed January 30, 1996, during the sixth meeting of the Gore-Chernomyrdin Commission.

—The U.S.-Russian Joint Statement on Control, Accounting, and Physical Protection of Nuclear Materials signed on January 30, 1996, during the sixth meeting of the Gore-Chernomyrdin Commission. This agreement extended U.S. cooperation to four additional locations in the Minatom civil nuclear sector and two locations in the Minatom nuclear weapon sector.

—In addition, in September 1995 and February 1996, DOE reached preliminary agreements with the Russian Navy and the Kurchatov Institute calling for a multi-step U.S.-Russian program to improve security at Russian storage sites for fresh naval nuclear fuel.

Question. What are the funding profiles over the next several years given the rapid growth of this program?

Answer. Fiscal year 1995, $70 million; fiscal year 1996, $85 million; fiscal year 1997, $94.2 million.

The exact funding profile in out years for the MPC&A program is subject to change as we gain a more detailed understanding of the scope of needed MPC&A improvements in Russia and the newly independent states. We currently anticipate a funding level of about $100 million per year for the period fiscal year 1998–2000. We expect that funding requirements will ramp down in fiscal year 2001 and fiscal year 2002 as the MPC&A program reaches its concluding phases. Due to uncertainties remaining over final program requirements we maintain flexibility in our planning and budgeting process.

Question. Discuss the goals and key elements of the Industrial Partnering Program (IPP).

Answer. The objective of Industrial Partnering Program (IPP) is to engage scientists and engineers from weapons institutes of the Newly Independent States (NIS) in peaceful applications of technology, leading to commercial benefits in both the United States and the NIS.

The principal goal of the IPP is to stabilize personnel and resources in the NIS that represent a proliferation risk. Other programs seek to secure the nuclear weapons and material; IPP seeks to address the incentives facing weapons scientists, engineers, and technicians operating in and around facilities with materials and equipment of concern.

The key elements of IPP are the following: first, the DOE national laboratories work with the NIS institutes to identify and evaluate the commercial potential of research and development at NIS institutes; second, approved partnerships are cost-shared by U.S. industry; finally, the objective is commercialization. The IPP leverages NIS intellectual capital, provides seed money to speed activity and lessen delay caused by uncertainty, and generates private sector-funded, self-sustaining projects that promote alternative peaceful employment and long-term stability for individuals involved in the Program.

Question. Can you give the committee an idea of the conditions and situation scientific and technical personnel are encountering?

Answer. These conditions can only be described as both professionally demeaning and economically threatening to the key weapons of mass destruction (WMD) scientists and engineers employed at the institutes of the former Soviet Union. As Deputy Secretary Curtis testified before Permanent Subcommittee on Investigations of the Senate Committee on Governmental Affairs on March 22, 1996: “Many scientists and engineers at Newly Independent States (NIS) institutes that possess nuclear material and weapons know-how are facing hardships that can only be compared to the deprivation of the Great Depression.” Budgets at WMD institutes have been severely cut; layoffs have occurred; and salaries have not kept pace with inflation. Even for those scientists, engineers and technicians who still have jobs, their paychecks are irregular, and working conditions are less than adequate. For instance, at the Kharkiv institute in Ukraine, unused spaces such as hallways and auditoriums are neither heated nor lighted.

Question. How much has been allocated for these activities in 1996 and what is budgeted for 1997?

Answer. Fiscal year 1996 will include $10 million from DOE and an anticipated $10 million from Nunn-Lugar funds. A portfolio of unfunded projects remains; future work depends upon the availability of funds. The fiscal year 1997 DOE budget for this program is $15 million.

Question. DOE had planned to undertake several hundred lab-to-lab research projects in 1996. How many have actually been initiated to date?

Answer. So far in fiscal year 1996, four projects have been approved and are ready to be initiated. Another eight projects are awaiting final approval and are expected to be initiated over a period of time between now and August.

Severe budget constraints mean that the Industrial Partnering Program (IPP) will only be able to initiate a small fraction of possible IPP projects. Against a total funding level of $20 million in fiscal year 1996, IPP expects to initiate approximately 45 DOE laboratory-to-NIS institute projects. Up to 20 additional cost-shared projects with industry are also possible. Another $55 million of possible IPP projects have been identified for which funding is not currently available.

Question. How would you assess the value of this program to the U.S. security?

Answer. The impact of Industrial Partnering Program (IPP) has been: (1) Reduction of the incentive for persons with knowledge of weapons of mass destruction to act contrary to their nonproliferation responsibilities by engaging them in carefully reviewed, peaceful commercial projects; and (2) Placement of the ultimate responsibility for a strong nonproliferation regime on the Newly Independent States (NIS). This is accomplished under IPP by developing necessary indigenous incentives, expertise, and capability. IPP is cooperative, reciprocal, and characterized by rapid success.

In addition to being an investment in National Security, there have been unanticipated benefits from IPP projects. For instance, a subcontract was signed with Arzamas-16 to develop a practical method of neutron passportization for source configuration control. This was the first IPP project to be completed, and the technology is already integrated into jointly developed Materials Protection, Control and Accounting (MPC&A) systems in Russia. This work was also an indication of how IPP can directly contribute to other nonproliferation efforts. We will continue to emphasize coordination and integration with similar program objectives.

Question. What is the difference in the cost-shared partnership and the commercial products effort?

Answer. The "cost-shared" partnership part of the Industrial Partnering Program (IPP) involves Thrust II projects which are Cooperative Research and Development Agreements (CRADA's) between the Department of Energy (DOE) laboratories and U.S. industry partners, with at least 50 percent of the work of the DOE laboratory being subcontracted to a weapons of mass destruction institute of the former Soviet Union. These cost-shared projects are either based on successful Thrust I projects (subcontracts by DOE laboratories to the institutes) or else are based on technologies, institutes and scientists deemed of interest by the U.S. industry partners. CRADA's are for precompetitive work aimed at demonstrating feasibility of technology.

The "commercial products effort" is the actual technical work of commercialization which will be done under subsequent, direct agreements between the U.S. industry partners and the institutes. Such commercialization work is usually extensive, and can include such things as pilot plant work to determine scale up operating and economic data for use in full-scale plant design, production for test markets, toxicity/mutagenicity testing, obtaining additional performance data in specific end uses, testing of alternate raw material sources, and so on.

OTHER INTERNATIONAL ACTIVITIES

Question. Update the committee on activities and schedules related to stabilization and storage of spent fuel at the North Korean research reactor.

Answer. U.S. responsibilities under the U.S.-DPRK Agreed Framework are successfully proceeding toward the ultimate objective of placing the 8,000 fuel rods in canisters for long-term storage under International Atomic Energy Agency (IAEA) safeguards. The project is comprised of three phases: first, water treatment to stabilize and clarify pool water to limit and reverse the growth of algae as well as slow the corrosion of the spent fuel elements; second, removal of the thick sludge from the pool floor caused by the corrosion of the magnesium oxide (MAGNOX) fuel element cladding; and third, cleaning and conditioning of the fuel elements and placement in storage canisters for securing in storage racks under IAEA safeguards.

The U.S. Spent Fuel Team has made significant progress. To date, the United States has completed Phases I and II. We have also completed the design, procurement, installation and successful testing of all the major elements of this system. In addition, U.S. personnel have maintained an almost continuous presence at the Nyongbyon facility since September 1995. The first phase was completed in September 1995. This clarified the pool sufficiently to allow moving the spent fuel baskets to an adjacent pool and performing other activities in the pool. The sludge caused by the corrosion of MAGNOX cladding was worse than anticipated and had accumulated on the floor of the pool to a depth of 6 to 8 inches. This complicated and delayed the vacuuming effort. The completion of this phase at the end of January 1996 has provided visibility of the floor which was necessary for placement of storage racks and other canning equipment in the pool. These preparations are complete and the final critical project phase of canning the 8,000 fuel elements at the four canning stations commenced on April 27, 1996.

Additional post-canning activities, such as fuel characterization and pool monitoring, will be required once canning is complete until the spent fuel can be removed from North Korea.

Question. Why is this work important to the U.S. Security?

Answer. The U.S.-DPRK Agreed Framework signed in October 1994 provided for a 'freeze' of the DPRK weapons program in place while plans were formulated for supply of two light water reactors to DPRK. Important aspects of the nuclear weapons freeze included: (1) securing the discharged spent nuclear fuel from DPRK's weapons program; (2) shutdown and eventual dismantlement of the DPRK's graphite reactors; and (3) eventual disposition of spent nuclear fuel from DPRK without reprocessing. The spent nuclear fuel the Department is canning holds approximately 25–30 kilograms of plutonium capable of making 5–6 nuclear weapons; the 'freeze' forestalls replenishment of North Korea's capacity to produce weapons-grade plutonium.

The completion of DOE spent fuel activities, pursuant to the Agreed Framework, is critical to U.S. national security as they remove any incentive or pretext for the DPRK to reprocess plutonium while reducing tensions on the Korean peninsula where 37,000 U.S. troops are stationed.

Question. What unexpected problems have you encountered and how has that impacted your ability to use the funds appropriated in 1996?

Answer. The Department of Energy originally estimated that it would cost $10 million to complete the canning operation in North Korea. The $10 million reprogramming request in January 1995 highlighted that there was an element of uncertainty in this estimate, especially since the United States has never collaborated with North Korea before. The $10 million initial estimate was derived in January 1995 after only 2 one-week trips to Democratic People's Republic of Korea (DPRK) with no other known benchmark for this task. It was indicated that no other similar project has ever been accomplished. The Department's closest experience in canning spent fuel had been a successful project in Taiwan, a known and open ally. There was no basis of knowledge about the technical, cultural or logistics difficulties working with and inside the DPRK. The cost estimate assumed an early project start date of February/March 1995 in order to arrest the accelerated fuel corrosion and was based on shifting early in the project to a 12-hour workday. The estimate for completion planned for a production rate-of 96 canisters per month.

There have been unforeseen time delays, technical problems and cultural issues which have caused the extension of the schedule and therefore, the increase of the project costs. This undertaking has been complex and a combination of factors have been responsible for the cost increase.

Unforeseen time delays were experienced as the Congress debated the original request for the $10 million reprogramming, by an inability to travel to DPRK until completion of the Kuala Lumpur talks and by the December withdrawal of the U.S. Spent Fuel Team due to Korean Peninsula Energy Development Organization's light water reactor supply talks. These delays have resulted in higher logistics and shipping costs, additional heat and cooling requirements and accumulation of additional sludge on the floor of the pool.

Technical issues have impacted the schedule adherence and the original cost estimate. These include: fuel rack design changes requested by the IAEA after design had been approved by the IAEA and DPRK and the racks had been manufactured; equipment damage due to improper operation by the North Koreans; and continuous power outages which cause disruption to planned work activities for the U.S. Spent Fuel Team.

Political and cultural issues have had significant impact on the Team's ability to control many critical work, travel and logistics aspects within the original cost estimate and schedule. This project is the first joint U.S. project in the DPRK. Overall, the DPRK cooperation has been good, but it has taken time to gain the DPRK's confidence and trust. The Team is operating in a North Korean facility and negotiates every day's work schedule and support with the facility director. The team is often not able to accomplish every work item required by the U.S. schedule. There are impacts to performing our work on a day-to-day basis at the facility, including, dependence on DPRK transportation, translation of all conversations and written protocols/instructions, the difficulty in making a change to any plan on a short notice, and many other factors which limit the U.S. team's flexibility to act unilaterally. The logistics of travel to DPRK are intricate and the visa approval process for DPRK is costly as it sometimes leaves our people stranded in Beijing, China. These and other political and cultural issues have caused schedule slip and cost increases.

The $3.6 million requested in fiscal year 1996 was anticipated for follow-on, post-canning maintenance and fuel characterization. However, because of the aforementioned time delays as well as technical and political problems, this funding has been used to continue the original spent fuel canning activity. The Department requires an additional $4.1 million in fiscal year 1996 to continue spent fuel canning from June 1996 to September 1996.

Question. What level of funding is requested for all North Korean activities for 1997? Provide a brief description of each activity and the level of funding requested.

Answer. A total of $7.9 million is requested for North Korean activities in fiscal year 1997. Funding of $5.4 million is estimated to be required for completion of the canning work by March 1997. In addition, the post-canning activities still required for fiscal year 1997 are estimated at $2.5 million.

Question. What is the anticipated funding needs for the North Korean spent fuel effort over the next several years?

Answer. While future maintenance and follow-on requirements cannot be clearly defined until the conclusion of the spent fuel canning work, it is estimated that $2.5–$5 million per year will be needed for this follow-on work from fiscal year 1998 through the removal of the spent fuel from North Korea (now estimated at 4–7 years).

PROGRAM DIRECTION

Question. I see that the funding request for Program Direction (Federal staff and contract services) to manage the Nonproliferation and National Security program within DOE increased by 15.5 percent from $82.3 million in 1996 to $95.6 million in fiscal year 1997. Along with $13.3 million in funding the budget proposes the staffing here in Washington, D.C. headquarters to increase from 336 FTE's to 353 FTE's. What is the justification of such a large increase over the current years level?

Answer. First I'll address the increase in funding and then respond to the Headquarters FTE increase.

The $13.3 million increase in Program Direction funding from fiscal year 1996 to fiscal year 1997 consists of the following: $5,395,000 increase for salaries and benefits; $154,000 increase for travel; $5,168,000 increase for support services contracts and $2,608,000 increase for Other Related Expenses.

The majority of the Headquarters funding increase in salaries and benefits is due to a net increase of 17 Headquarters FTE's from fiscal year 1996 to fiscal year 1997. In addition, the fiscal year 1996 column of the budget does not reflect a comparability adjustment of $1.0 million for the 10 FTE's transferred from Defense Programs and Environmental Management to the Office of Security Affairs in order to accomplish the consolidation of safeguards and security as recommended by Congress. This $1.0 million is included for the first time in the fiscal year 1997 column of the budget. If the $1.0 million comparability adjustment were reflected in the fiscal year 1996 column, the increase in Headquarters salaries and benefits from fiscal year 1996 to fiscal year 1997 would equal $4,395,000 rather than $5,395,000.

The $154,000 increase in funding for travel will cover the additional 17 Headquarters FTE's, an expected increase in travel by the Office of Declassification, and travel associated with the 10 safeguards and security FTE's transferred into the Office of Security Affairs from Defense Programs and Environmental Management.

Approximately eighty percent of the increase in funding for support services ($4,050,000 out of $5,168,000) is associated with increased declassification activity mandated by Executive Order 12958 and efforts related to the Declassification Productivity Initiative. Additionally, increased workloads in the Counterintelligence and Special Technologies activities account for an increase of $742,000. Support services for the Nonproliferation and Arms control program increase by $502,000 to cover export control and nuclear nonproliferation activities. There is a modest reduction of $201,000 in the Emergency Management and Nuclear Safeguards and Security Program.

Funding for Other Related Expenses increased $2,608,000 from fiscal year 1996 to fiscal year 1997. This includes increases for rental payments to General Services Administration, including communications, utilities, and miscellaneous charges; printing and reproduction and other services, office automation (including a local area network for Headquarters), supplies, and small equipment purchases.

The net increase of 17 FTE's in Headquarters Staffing from fiscal year 1996 to fiscal year 1997 is made up of the following: a plus 20 FTE's to cover the Hearings and Appeals staff now carried in our budget and a decrease of 3 FTE's in the administrative support area of the Office of Nonproliferation and National Security. The 20 Hearings and Appeals FTE's included in the fiscal year 1997 Program Direction budget were previously funded elsewhere in the Department.

Question. While a significant part of the increase is related to personnel costs and benefits, a nearly $5.0 million increase is requested for Advisory and Assistance Services and Other Services. Can you explain the reason for this increase?

Answer. Advisory and Assistance Services consists of support service contracts which increased by $5,168,000 from fiscal year 1996 to fiscal year 1997. The vast majority of this increase supports additional work mandated by Executive Order 12958 and continues the support for the Declassification Productivity Initiative in the Office of Declassification. This increase also supports additional activity in the Department's Counterintelligence and Special Technologies programs as well as the export control and nuclear nonproliferation programs.

Question. Provide for the record a detail breakout of these costs for 1995 along with how the 1996 and 1997 funds will be used.

Answer. I will be glad to provide that for the record.
[The information follows:]

NONPROLIFERATION AND NATIONAL SECURITY—ADVISORY AND ASSISTANCE SERVICES

[In thousands of dollars]

	Fiscal year		
	1995	1996	1997
Headquarters:			
Verification R&D	1,700	1,950	2,025
Emergency management	3,250	625	600
Arms control and nonproliferation	7,143	8,215	8,717
Security affairs:			
Safeguards and security	8,160	7,358	7,182
Declassification/classification	7,372	8,450	12,500
Intelligence	1,729	1,123	1,865
Field: Nevada	350	525	525
Total support services	29,704	28,246	33,414

Advisory and Assistance Services consists of support services contracts being used in fiscal year 1996 and fiscal year 1997 to provide an invaluable resource of highly specialized technical and analytical expertise for all facets of the Office of Nonproliferation and National Security (NN). Without these contracts the Office of Nonproliferation and National Security would not have access to the technical and analytical expertise necessary to meet its critical nonproliferation and national security mission.

Approximately eighty percent of the increase in this area from fiscal year 1996 to fiscal year 1997 is a result of the additional support service contract activity necessary to meet the declassification requirements of Executive Order 12958 and continue support for the Declassification Productivity Initiative.

The following is a summary of the support services provided under Advisory and Assistance Services:

Declassification/Classification Program.—The mission of the Office of Declassification (OD) is to identify that information which must continue to be protected because of national security and nuclear nonproliferation objectives while declassifying and publicly releasing that information which poses little national security or nuclear proliferation threat or concern. To accomplish this mission, OD relies upon its support service contractors to provide an extraordinarily broad mix of specific technical skills to perform work in the following areas:

—*Document reviews.*—Contractors review virtually all documents for OD. To review documents for either classification or declassification requires individuals with expertise in a wide variety of technical areas; e.g., isotope separation, environmental safety and health, nuclear weapons design. This expertise is typically obtained through a combination of advanced degrees in the physical science or engineering fields and extensive experience in positions dealing with nuclear materials and weapons. The potential subject areas of the documents needing review include not only every classified program currently being conducted in the Department of Energy (DOE), but also every obsolete or canceled classified program that was ever conducted in the DOE or its predecessor agencies going back to the Manhattan Project during World War II.

—*Technical guidance.*—Contractors are an integral part of the classification guidance development process. DOE is the custodian of the Nation's technology for defense uses of nuclear energy, including nuclear weapons and nuclear materials production. To assure that such information is protected from potential adversaries, proliferants, and terrorists, detailed, technical guidance must be developed, issued, and revised in all the areas of nuclear weapon design, development, testing, manufacture, disassembly and reuse; arms control and verification; nonproliferation; intelligence; mutual defense treaties; computer codes; and inertial confinement fusion as well as in the following technology areas: isotope separation, chemical processing, tritium technology, space power, production and military reactors, sensitive technologies, strategic petroleum reserve, safeguards bilateral agreements, security, militarily critical technologies, utility system security, and reimbursable research and development programs. As noted under Document Reviews above, individuals who develop, issue, and revise such guidance must have technical degrees and expertise in a wide variety of technical areas.

—*Advanced automation technologies.*—Contractors have unique technical capabilities to assist in the development of advanced automated systems. The current document declassification process is labor intensive and technically complex. In order to improve the efficiency and effectiveness of this process, efforts have begun to design a system where a computer rather than a person will do the actual initial review of a document and will tag those portions of the document which are probably classified. However, this effort represents a great technical challenge and is a high risk research and development project. Such work requires individuals who are experienced in state-of-the-art automation technologies and advanced programming techniques which can describe and then reproduce the human thought process.

The launching of Secretary O'Leary's Openness Initiative in December 1993 and the signing of Executive Order 12958 in April 1995 both require the declassification and public release of millions of pages of previously classified documents. Prior to a document being released, OD must assure that it is thoroughly reviewed to prevent the inadvertent release of classified nuclear-related design information. The broad range of specific skills provided by our support contractors is critical to this important national security mission.

—*Arms control and nonproliferation.*—Support services contracts are essential to ensure that NN can meet the objectives of the materials protection, control and accounting programs with the former Soviet Union and other nonproliferation initiatives, such as technical, analytical and administrative support for implementation of the Proliferation Information Network Data Base and inter-agency export control activities, and the conduct of export control system technology transfer activities. The fiscal year 1997 request reflects an increase of only $502,000 over fiscal year 1996.

—*Intelligence.*—The Office of Energy Intelligence increasingly relies on support service contracts as the only viable solution to provide the technical expertise necessary to meet the requirements of a continually expanding mission. The fiscal year 1997 funding for support service contracts will provide direct support to the Counterintelligence and Special Technologies Programs. In addition, funding will provide intelligence infrastructure support such as special security, computer security and classified document control.

The Special Technologies Program serves as the gateway for the Intelligence Community (IC) to access the DOE technology base in support of operational requirements by identifying dual-use technologies and facilitating technology transfers. The support service contractors serve as technical analysts and technical liaison between the IC and the laboratory research and development community. They also maintain the project database, review technical proposals for technical merit, and coordinate technical interagency meetings.

Foreign intelligence services have steadily targeted DOE assets, subjecting them to increased risk. Counterintelligence briefings are imperative to combating that trend. The support service contractors provide IC reporting, incident reporting, training, counterintelligence database maintenance, indices checks, risk management, counterintelligence briefings and debriefings.

—*Verification research and development.*—The contractor provides technical, analytic, and program management support services. These services include: analyses of technical opportunities to support future proliferation detection and treaty verification requirements; review and assessment of technology and program status reports; quick response technical analyses of treaty verification studies; and review and assessment of the current state-of-the-art in the multiple technical disciplines associated with treaty verification and proliferation detection.

—*Safeguards and security.*—The Safeguards and Security program is key to preventing the loss of any nuclear weapon, theft or diversion of special nuclear materials, and ensuring that no loss of life is directly related to a failure of its protection programs. The support service contract, which provides support to field elements for implementation of cost-saving safeguards and security measures, is critical to providing timely and cost effective technical, analytical, and support expertise essential to a balanced Safeguards and Security program that can deal with technology advancements, and address current issues and problems, as well as a dynamic changing environment such as new activities associated with arms control and nonproliferation, and weapons returns. Key talents available through the support service contract include engineers, statisticians, material accounting and control specialists, technical and physical security professionals, and computer security specialists. The support services contract also provides skills for security operations such as badging, fingerprinting, security briefings, and other related activities at our Headquarters. In addition, timely security investigations are dependent on this support service contract which provides psychiatrists, personnel security review examiners, reporting and transcript services, and other personnel security clearance services.

—*Emergency management.*—There has been considerable consolidation of, and overall reduction in, support service contracts in the emergency management program to reduce the level from $3.25 million in fiscal year 1995 to a requested level of $600,000 in fiscal year 1997 (and from five contracts to two). The remaining funds support conduct of: Technical assistance appraisals, emergency response tests and exercises, counter terrorism liaison and activities, readiness assurance activities, and assistance in monitoring domestic energy situations.

Question. Page 537 of the budget justification indicates that $4.0 million of the $5.0 million increase for Support Service contracts at Headquarters is for additional support for the Declassification Program. Why isn't this funding included in the Classification/Declassification program with other program related contract funding requirements.

Answer. In preparing the new Program Direction budget, the Department's policy as directed by the Chief Financial Officer was that all "support services contracts" must be reported to Congress as part of the Program Direction account. Hence the work performed by support services contracts for Classification/Declassification is reported in the Program Direction Account while the work performed by Management and Operating contractors and laboratories are reported in the budget under the program title of Nuclear Safeguards and Security.

Question. Why is there such a large increase in support services over the 1996 level?

Answer. The support services contract account increased by $5,168,000 from fiscal year 1996 to fiscal year 1997. Of this increase, $4,050,000 is to provide additional support work on Executive Order 12958 and Declassification Productivity initiative. The Office of Declassification relies upon support services contractors to provide an extraordinarily broad mix of technical skills to perform work in areas such as document reviews, technical guidance and advanced automation technologies. The Department's Openness Initiative and the signing of Executive Order 12958 both require the declassification and public release of millions of pages of previously classified documents. Prior to a document being released, Declassification must assure that it is thoroughly reviewed to prevent the inadvertent release of classified nuclear related design information. The Intelligence program increase of $742,000 is to cover Counterintelligence and Special Technologies activities. Nonproliferation and Arms Control program increased by $502,000 to cover export control and nuclear nonproliferation activities. There is an increase of $75,000 to cover verification and research and development contract escalation costs, and a modest decrease in the Nuclear Safeguards and Security and Emergency Management contracts ($201,000).

QUESTIONS SUBMITTED TO FRED S. CELEC

STOCKPILE STEWARDSHIP AND MANAGEMENT PROGRAM

Question. Mr. Celec, Dr. Reis has laid out DOE's program to maintain the safety reliability of the U.S. nuclear stockpile. Does the Department of Defense believe this program will provide high confidence in the safety, security, and reliability to ensure DOD mission requirements? If not, what are DOD's concerns?

Answer. Maintenance of a safe and reliable enduring stockpile of nuclear weapons is in the supreme national interest of the United States. The DOE's program of Science Based Stockpile Stewardship is one approach that will address the need for confidence during a moratorium on testing and under a comprehensive test ban treaty. It may be possible, though by no means easy or certain, to have a stockpile stewardship program capable of furnishing an adequate level of confidence in the enduring stockpile without testing. Our level of confidence will depend on the nature and scope of the problems that arise in the enduring stockpile, the success and support of the stockpile stewardship program itself, and the ability to apply the tools of Stockpile Stewardship and Management to predict and solve these problems. Funding for new facilities required to replace underground testing will continue to place a strain on core programs. Future budgets must include sufficient funds to ensure that programs of specific interest to the DOD, such as refabrication of existing warheads and robust predictive surveillance, are sustained.

Question. Does the DOE's budget request maintain the U.S. nuclear deterrent?

Answer. The fiscal year 1997 budget will maintain an adequate level to sustain crucial capabilities. It is vital that functions delineated in the NPR (such as refabrication and certification of weapons in the enduring stockpile, enhanced surveillance, and weapons design capabilities) be met in the future. Out-year budgets must include sufficient funds to ensure that these vital programs are sustained.

Question. Does DOE's Stockpile Stewardship and Management Program maintain the critical nuclear weapons personnel and skills needed to maintain a safe, secure, and reliable stockpile?

Answer. It is vital that functions delineated in the NPR (such as refabrication and certification of weapons in the enduring stockpile, enhanced surveillance, and weapons design capabilities) be performed by a trained staff of technical experts. One of the primary goals of the Science Based Stockpile Stewardship program is to develop and maintain an expert cadre of nuclear weapons scientists in an intellectually stimulating environment of applied research. As currently envisioned, implementation of the Stockpile Stewardship and Management Program could satisfy this critical requirement, through stimulating research being conducted at world-class facilities.

Question. Do you believe that the Stockpile Stewardship and Management Program will provide the capability to design, fabricate, and certify refabricated/replacement nuclear warheads in the absence of underground testing?

Answer. Maintenance of a safe and reliable enduring stockpile of nuclear weapons is in the supreme national interest of the United States. The DOE's concept of science-based stewardship is, addresses the need for confidence during a moratorium on testing and under a comprehensive test ban treaty. Our level of confidence will depend on the nature and scope of the problems that arise in the enduring stockpile, the success and support of the stockpile stewardship program itself, and the ability to apply the tools of Stockpile Stewardship and Management to predict and solve these problems.

SUBCOMMITTEE RECESS

Senator DOMENICI. We stand in recess, subject to the call of the Chair.

Thank you very much.

[Whereupon, at 11:35 a.m., Tuesday, April 16, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1997

TUESDAY, APRIL 23, 1996

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:05 a.m. in room SD–116, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici, Bennett, Johnston, and Murray.

DEPARTMENT OF ENERGY

OFFICE OF ENERGY RESEARCH

STATEMENT OF DR. MARTHA KREBS, DIRECTOR

OPENING STATEMENT

Senator DOMENICI. The subcommittee hearing will please come to order.

This morning the Energy and Water Subcommittee will focus on the fiscal year 1997 budget request for the Department of Energy's basic energy research and general science programs, both of which are administered by the Office of Energy Research.

I will begin by congratulating the Office of Energy Research on the quality of its work in 1995. The Nobel Prize in Physics was awarded for research supported by the Office of Energy Research that resulted in the discovery of two fundamental building blocks for all matter, the neutrino and the tau lepton. Is that how you say that? Tau lepton. In 1996, the Nobel Prize for Chemistry was awarded for research, also supported by the Office of Energy Research, on the effects of freon on the atmosphere.

BUDGET REQUEST FOR FISCAL YEAR 1997

The total 1997 budget request for energy research is $2.549 billion, essentially the same as the comparable appropriation for fiscal year 1996.

Within the energy research, the administration has proposed reducing the budget for biological and environmental research by $27.3 million, a 7-percent reduction from comparable 1996 levels, to $379 million.

For fusion energy, the fiscal year 1997 request was $255.6 million, a $28.2 increase, 12 percent, from the comparable fiscal 1996 level. The fiscal year 1997 request for basic energy science is

$653.7 million, essentially the same as the comparable current year level, while university and science education would increase about $1 million above comparable, to $19.9 million.

The total fiscal year 1997 request for general science programs, which includes high energy physics and nuclear physics, is $1.009 billion, a $27 million, 3 percent increase from comparable 1996 level.

Dr. Krebs, the Director of the Department of Energy's Office of Energy Research is going to testify in behalf of the administration. Before we call on you, Dr. Krebs, we will ask Senator Johnston if he has any comments.

Senator JOHNSTON. Mr. Chairman, I have no comments except to welcome Martha Krebs here. We like her work. We like her. She has done a good job.

Senator DOMENICI. Well, that is a lot better.

Senator JOHNSTON. That is right.

Senator DOMENICI. Doctor, please proceed.

STATEMENT OF MARTHA KREBS

Dr. KREBS. Thank you very much, Mr. Chairman, Senator Johnston.

I have to say that it is also a pleasure for me to be here, not only because I respect the subcommittee, but I respect the work that both of you gentlemen have done in the past.

Senator DOMENICI. Thank you very much.

Dr. KREBS. It is a real pleasure. I am honored to be here representing energy research and in difficult times energy research continues to deliver critical elements of the U.S. science base. In 1996, we are third after NIH and the National Science Foundation in contributing to the basic research investment on the part of the Federal Government.

More significantly, we are first among Federal agencies in contributing to physical facility construction and operations primarily at our laboratories but on behalf of the larger investment by the Federal Government.

These facilities, the user facilities, serve some 18,000 to 20,000 users—60 to 70 percent of them are from academia and they are supported by other than the Department of Energy, and I will talk about that a little more.

In the next few minutes, I would like to talk about delivering on our commitments. You have indicated some that I would use, the research integration across the Department of Energy and efforts that we are making to improve that and cutting costs.

In terms of delivering on our commitments, our first commitment is outstanding science. We confirmed the existence of the top quark in the last year and indeed, the Nobel Prizes that you mentioned, I think, are testaments not only to the quality of research but also to the length of time it takes to either obtain recognition or to obtain use of scientific results from the point of view of the missions of the Department. I think that particularly refers to the work by Sherry Rowland and Mario Molina on their chlorine ozone chemistry research.

USER FACILITIES

I would also like to give you an example of how our user facilities contribute to science other than that which is supported by the Department of Energy. This science magazine cover is a representation of the structure called the lactose repressor protein. And I receive that at home. That is my copy.

Senator DOMENICI. I am not going to take it. [Laughter.]

[The information follows:]

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CRYSTAL STRUCTURE OF THE LACTOSE OPERON REPRESSOR AND ITS COMPLEXES WITH DNA AND INDUCER

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The lac operon of Escherichia coli is the paradigm for gene regulation. Its key component is the lac repressor, a product of the lacl gene. The three-dimensional structures of the intact lac repressor, the lac repressor bound to the gratuitous inducer isopropyl-β-D–1-thiogalactoside (IPTG) and the lac repressor complexed with a 21-base pair symmetric operator DNA have been determined. These three structures show the conformation of the molecule in both the induced and repressed states and provide a framework for understanding a wealth of biochemical and genetic information. The DNA sequence of the lac operon has three lac repressor recognition sites in a stretch of 500 base pairs. The crystallographic structure of the complex with DNA suggests that the tetrameric repressor functions synergistically with catabolite gene activator protein (CAP) and participates in the quaternary formation of repression loops in which one tetrameric repressor interacts simultaneously with two sites on the genomic DNA.

More than 30 years ago, Jacob and Monod (1) introduced the *E. coli* lactose operon as a model for gene regulation. The model persists as a cogent depiction of how a set of structural genes may be coordinately transcribed or repressed depending upon the concentration of metabolites in the growth medium. The product of the *i* gene, the repressor molecule, binds to a specific DNA sequence and functions as a molecular switch in response to inducer molecules. In the absence of extracellular lactose, the repressor binds tightly to the operator DNA and prevents transcription of *lacZ, lacY,* and *lacA,* which code for β-galactosidase, *lac* permease, and a transacetylase, respectively. Conversely, when lactose is present in the medium, the repressor dissociates from the operator, allowing transcription of the structural genes.

The *lac* repressor is a protein (2) of 360 amino acids that associates into a homotetramer of 154,520 dalton molecular mass (3, 4). This tetramer can be cleaved by limited protease digestion into five distinct fragments: four NH_2-terminal fragments (about 60 residues) that bind specifically to operator DNA; and a COOH-terminal tetrameric core that binds inducers and their analogs (5). The last 30 amino acids of the core are responsible for the oligomeric state of the repressor and mediate tetramerization (6–8). The operator of the *lac* operon was originally identified from cis-acting constitutive (o^c) mutants (1). A 27-base pair (bp) DNA fragment, which encompasses these o^c mutations and is protected from deoxyribonuclease digestion by bound *lac* repressor, is centered 11-bp downstream from the start of transcription of the *lacZ* gene (9). This operator has an axis of approximate dyad symmetry, a feature common to many transcriptional regulatory sites. The *lac* repressor binds with 10 times greater affinity to a palindrome of the left half of the operator, which lacks the central base pair (10, 11). The natural inducer of the repressor molecule is allolactose, an analog of lactose created by a side reaction of β-galactosidase (12). However, a gratuitous inducer, isopropyl-β-D–1-thiogalactoside (IPTG), that is not a substrate for β-galactosidase, can be used to turn on transcription of the lactose operon (13).

In their first paper on allostery, Monod, Changeaux, and Jacob (14) presented a unified view of conformational transitions in multimeric proteins. They considered the possibility that the affinity of the repressor for operator DNA could be regulated by allosteric effectors. An inducer or a co-repressor would cause a change in the conformation of the repressor and interfere with its binding to operator DNA. When crystals of the *lac* repressor-*lac* operator complex are exposed to the allosteric effector IPTG, they immediately shatter (15), reminiscent of the shattering of crystals of deoxyhemoglobin when exposed to air (16, 17).

Control of the *lac* operon is complex and involves positive activation by a cyclic AMP-dependent catabolite gene activator protein (CAP). At high concentrations of cyclic AMP, the CAP protein raises the amount of transcription by binding a recognition site on the DNA adjacent to RNA polymerase and thereby the affinity of RNA polymerase for the promoter is increased (18). In addition to the principal operator O_1, the *lac* operon has two auxiliary operators, O_2 and O_3, which were discovered after the *lac* repressor was isolated and its operator DNA was sequenced (19). The center of the second operator, O_2, is located 401 bp downstream from the primary operator in the *lacZ* gene. The third operator, O_3, overlaps the COOH-terminal coding sequence for the *lacI* gene and is centered 93 bp upstream from O_1. All three operators are required for maximum repression in vivo (20).

Few proteins have had such a strong impact in molecular biology. For decades, a prodigious amount of genetic and biochemical information on *lac* repressor has awaited structural interpretation (21). A site-specific substitution analysis by Miller and co-workers (22–24) resulted in more than 4000 single amino acid replacements of known phenotype between codons 2 through 329 of the *lacI* gene. There are more known functional variants of the *lac* repressor than of any other protein, including hemoglobin (25).

The *lac* repressor and its complexes with operator DNA and effector molecules have both contemporary and historical importance for the understanding of gene regulation. As a consequence, considerable effort has been devoted to determining the three-dimensional structures of the *lac* repressor and related proteins. The structures of proteolytic fragments of both the NH_2-terminal DNA binding domain (26) and the COOH-terminal tetrameric core bound to inducer (27) have been determined. The *lacI* family of proteins consists of about 20 transcriptional regulators that have sequence homology to the *lac* repressor (28). Within this family, only the dimeric purine repressor (PurR)-DNA complex structure has been determined (29). We present here the three-dimensional structures of the intact *lac* repressor, the *lac* repressor bound to the gratuitous inducer IPTG, and the *lac* repressor complexed with a 21-bp symmetric operator DNA. These structures provide not only the three-dimensional framework for interpreting a plethora of biochemical and genetic information but also suggest an explicit model for how the tetrameric form of the *lac* repressor interacts with DNA and functions synergistically with CAP to regulate the *lac* operon.

Structure determination of the repressor and its complexes. Methods for protein isolation, purification, and initial crystallization of the intact *lac* repressor have been described (15). The *lac* repressor crystallized in a monoclinic space group C2 (30). The structure was solved by multiple isomorphous replacement (MIR) and anomalous scattering (Table 1). A mercury analog of the inducer IPTG, methylmercury(II)-β-D–1-thiogalactopyranoside (MMG) was synthesized by methods established for derivatives of sugars that bind pertussis toxin (31, 32). Isomorphous crystals were obtained with MMG and the difference Patterson function was solved by a genetic algorithm search procedure (33). The mercury bound to Cys^{281} on the surface of the repressor and close to, but not in, the sugar binding site. This was surprising since MMG competed for IPTG binding in vitro. A second derivative, prepared by soaking crystals with $K_2Pt(CN)_4$, was far more stable in the x-ray beam and the limit of diffraction was extended from 3.5 to 2.5 A. This heavy atom derivative did not alter the inducer binding as measured by equilibrium dialysis. Anomalous scattering data were collected from a single crystal with x-rays at the platinum absorption edge (λ=1.071 A), which gave a Patterson function with a clear heavy atom signal. However, these data were not isomorphous with the native data, and a substitute "native" data set was collected from crystals soaked in $K_2Ni(CN)_4$. A single heavy atom, which was positioned on the noncrystallographic twofold axis that relates the two dimers, bound per tetramer and stabilized the tetramer by noncovalently cross-linking the dimers.

Table 1. Data collection and crystallographic analysis. Data were collected in our laboratory at the University of Pennsylvania (PENN), on the X-8-C beamline at the NSLS Brookhaven National Laboratory (BNL), and on the F2 beamline at Cornell High Energy Synchrotron Source (CHESS). All Pt and Ni data sets were collected at −165°C. For cryoprotection, *lac* repressor crystals, which had been previously exposed to $K_2Pt(CN)_4$ or $K_2Ni(CN)_4$, were soaked stepwise in a series of solutions of 2-methyl-2,4-pentandiol ranging from 5 to 25 percent over a 10-minute period, mounted in rayon loops, and then flash-cooled in a stream of nitrogen gas chilled to −165°C. PENN data were collected with a Siemens multiwire area detector mounted on a Siemens rotating anode generator operated at 40 kV, 80 mA. Diffraction images were processed and scaled with the XDS package (*72*). BNL data were collected with a CCD detector and diffraction images were processed with MADNES (*73*) and scaled with XSCALE (Kabsch). CHESS data were collected with the Princeton 1K CCD detector. Images collected at CHESS were integrated and scaled [DENZO and SCALEPACK (*74*)]. Anomalous data for platinum-soaked crystals as well as the isomorphous nickel crystals were collected at the absorption maximum of Pt LIII edge (λ = 1.071 Å). The Pt-absorption edge was determined by x-ray fluorescence at 90 degrees from the crystal. Data collection for the unsoaked, uncomplexed *lac* repressor, the *lac* repressor co-crystallized with MMG, the DNA–*lac* repressor and the IPTG–*lac* repressor crystals was done at room temperature (designated by RT). The following summarizes the space group and cell parameters of the crystals given in Table 1: Co-crystallization with MMG: Monoclinic, *C2*; a = 166.4, b = 75.4, c = 150.2 Å; β = 119.0°. $K_2Pt(CN)_4$ and $K_2Ni(CN)_4$ soak: Monoclinic, *C2*; a = 160.3, b = 73.3, c = 147.8 Å; β = 120.3°. Apo *lac* repressor: Monoclinic, C2; a = 164.5, b = 75.4, c = 148.7 Å; β = 118.8°. Co-crystallization with IPTG: Orthorhombic, $P2_12_12$; a = 149.2, b = 141.2, c = 75.1 Å. Co-crystallization with DNA: Monoclinic, *C2*; a = 104.3, b = 224.4, c = 112.1 Å; β = 95.7°.

Crystal	Data set		Data statistics					MIR and anomalous analysis				
	Source	No.	Resolution (Å)	Reflections		R_{sym}* (%)	Completeness (%)	Isomorphous† difference (%)	Phasing power‡		Figure of merit	
				Total	Unique				Acentric	Centric	Acentric	Centric
MMG	PENN-RT	8	15.0–3.50	89,018	18,234	7.4	87	18.0	1.6	1.1	0.42	0.61
$K_2Pt(CN)_4$	CHESS	1	15.0–3.15	54,876	17,781	7.1	65	17.5	1.4	1.1	0.38	0.63
	BNL	1	15.0–2.53	72,476	29,211	5.2	56	18.0	1.6	1.2	0.40	0.62
	PENN	1	15.0–2.70	71,187	37,143	4.4	89	17.8	1.6	1.2	0.40	0.60
$K_2Ni(CN)_4$	BNL	1	15.0–2.97	68,473	24,293	4.8	80					
	PENN	1	15.0–4.80	26,039	7,455	6.4	98					
Apo	PENN-RT	8	15.0–4.80	56,580	7,764	7.2	95					
IPTG	PENN-RT	1	15.0–3.20	110,526	26,094	9.1	97					
DNA	PENN-RT	5	15.0–4.80	43,976	11,283	5.8	90					

Model statistics

Model	R (%)	rms bonds (Å)	rms angles (degrees)
LacR	25	0.005	2.1
IPTG	23	0.014	1.9
DNA	26	0.011	1.8

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*$R_{sym} = \Sigma_{i,h}|I(i,h) - \langle I(h)\rangle|/\Sigma_{i,h}I_{(i,h)}$, where $\langle I(h)\rangle$ is the mean of the i observations of the reflection h. †Isomorphous difference is $\Sigma_h|F_{PH} - F_P|/\Sigma F_{PH}$, where F_P and F_{PH} are the derivative and native structure factor amplitudes, respectively. $K_2Ni(CN)_4$ (BNL and PENN) data were used as native for the $K_2Pt(CN)_4$ (BNL and PENN) data, respectively. $K_2Ni(CN)_4$ (BNL) was used as a native for the $K_2Pt(CN)_4$ (CHESS) data. PENN-RT data were used as native for the PENN-RT MMG data set. ‡Phasing power, mean value of heavy atom structure factor amplitudes divided by the lack of closure.

Parallel attempts were made to solve the structure by molecular replacement methods. Self-rotation functions (34) revealed 222 symmetry in the diffraction data, indicating a noncrystallographic twofold axis perpendicular to the unique axis. The orientation of the molecule was determined from a cross-rotation function with the dimeric purine co-repressor binding domain (29). Conventional search procedures to translationally position this model were unsuccessful. Using a genetic algorithm (GA__RB), the molecule was positioned by simultaneously determining the orientation of the search molecule while searching for the position of the subdomains within the cell (35). The molecular replacement solution was verified by calculating the isomorphous and anomalous difference Fourier in each case, which produced large peaks at the expected heavy atom sites.

An unbiased view of the *lac* repressor was obtained independently with the phases derived from the heavy atom derivatives. A preliminary set of phases was computed with PHASES (36) followed by solvent flattening. Electron density maps computed with these initial phases were sufficient to see the molecular boundary of the tetramer in the asymmetric unit. The experimentally derived phases were refined by separate fourfold averaging of the noncrystallographically related inducer binding domains and COOH-terminal oligomerization helices. A model built to the averaged electron density with CHAIN (37) revealed the core structure (residues 62 to 329) as well as the COOH-terminal oligomerization helices (residues 340 to 357). Residues 1 to 61 were disordered in the absence of DNA.

A model of the repressor, containing residues 62 to 357, was refined with the use of both the experimentally measured amplitudes and the symmetry averaged phases as implemented in X-PLOR (38). The fit of the model to the map is described by a vector residual of 39 percent, corresponding to a crystallographic R factor of 25 percent, for all data with d spacing greater than 2.7 Å. The stereochemistry of the model has a root-mean-square (rms) error in bond lengths and angles of less than 0.005 Å and 2.1°, respectively. As an independent check of the model, the averaging was repeated starting with phases derived from a polyalanine model of *lac* repressor. The resulting electron density from this "side chain omit map" allows the objective placement of the side chains in the model.

A different crystal form appeared when the repressor was co-crystallized in the presence of IPTG (30). The diffraction quality of these crystals was also improved by K_2 $Pt(CN)_4$. These $P2_12_12$ with one tetramer in the asymmetric unit. The structure of the inducer complex was solved by conventional molecular replacement techniques (34) with amino acids 62 to 329 of the *lac* repressor structure. Initial phases were calculated on the basis of the uncomplexed structure and averaged from the fourfold noncrystallographic symmetry. The electron density map revealed the location and position of the inducer molecule as well as the platinum atom. The model of the repressor-inducer complex was also refined employing strict noncrystallographic symmetry and the phase constraints. The agreement between the observed data and that calculated from the model for the data to 3.2 Å has a vector residual of 38 percent and the conventional R factor of 23 percent. Again, there is no electron density for the headpieces and the hinge helices.

Several dozen synthetic double helical fragments of DNA that varied in length and sequence produced crystals. Only one synthetic operator produced crystals that diffracted sufficiently well. These crystals contain a 21-bp symmetric operator segment to which the repressor binds with greater affinity than the wild-type sequence (39). Crystals of the binary complex grew in space group C2 yielding diffraction data with d spacings greater than 4.8 Å (Table 1). Molecular replacement methods were used to find the orientation of the *lac* dimers and their positions were determined with the use of GA__RB (35). Several iterations of fourfold noncrystallographic symmetry averaging improved the quality of the phases and produced unambiguous electron density for building the intact repressor as well as the 21-bp DNA. Again, the coordinates were improved by means of a phase-constrained refinement and maintaining strict noncrystallographic symmetry. The structure of the repressor-DNA complex agrees with the experimental data having a vector residual of 46 percent and a crystallographic R value of 26 percent. When the repressor was complexed to the DNA, the headpieces were ordered and were visible in the electron density.

Architecture of the repressor. The repressor monomer has four functional units, namely, an NH_2-terminal headpiece which binds specifically to the DNA, the hinge region, a sugar binding domain, and a COOH-terminal helix. The DNA binding domain, or headpiece of the *lac* repressor contains a helix-turn-helix (HTH) motif and is similar to other prokaryotic regulatory proteins in this class (40). A small, compact globular domain with a rich hydrophobic core is formed by two alpha helices in a HTH motif (residues 6 to 25) that is connected by a short stretch of polypeptide chain to the third helix (residues 32 to 45).

A linker (residues 46 to 62) connects the DNA binding domain to the core of the repressor. This segment of the polypeptide chain, referred to as a hinge, was thought to be devoid of secondary structure because it is most susceptible to proteolytic cleavage (41). Nuclear magnetic resonance (NMR) studies of the intact repressor in the presence and absence of DNA demonstrate that the headpiece of repressor moves independently of the core (42, 43). In the presence of DNA, residues 50 to 58 are ordered and form an alpha helix that appears to (i) make specific interactions with the *lac* operator DNA and (ii) orient the headpieces. The coil-to-helix transition for residues 50 to 58 occurs only when the repressor associates with the operator. In the absence of the DNA, the hinge helices are disordered giving the headpieces a broad range of structural freedom.

The inducer binding domain or core structure of the *lac* repressor is similar to PurR (29) and to the bacterial periplasmic binding proteins (44). The inducer binding domain is composed of two subdomains that are topologically similar, with a six-stranded parallel b sheet that is sandwiched between four alpha helices. These two compact subdomains are hinged together by three linkers. At the COOH-terminus of the core there is a short segment of 11 residues followed by a COOH-terminal alpha helix (residues 340 to 357) that contains two leucine $\breve{\alpha}$ repeats. An oligomerization domain is formed when all four COOH-terminal helices of the tetramer associate. Mutations and deletions of the COOH-terminus destroy the tetramer and result in dimers with partial repressor function (6, 8, 20, 45).

The quaternary structure of the *lac* repressor and the core fragment (27) are unusual and do not maintain the point group symmetry of other oligomeric proteins of known structure. Since virtually all homotetramers of known structure have D2 (222) symmetry, it may be more useful to consider the *lac* repressor as a dimer of dimers. The twofold axis that relates the monomers within the dimer are skewed (DF=20°; DF=10°) with respect to the twofold axis that relates the dimers within the tetramer. This creates a repressor tetramer that is roughly V-shaped. It is unlikely this unusual quaternary structure is a consequence of the crystalline state, since this tetrameric arrangement is observed in all three crystal forms used in this study and is retained in the core structure (27).

The interface between two monomers of a dimer is quite extensive and buries 2200 A^2 of surface area. Four principal clusters of amino acids create this dimer interface: residues 70 to 100, 221 to 226, 250 to 260, and 275 to 285. With the exception of residues 250 to 260, point mutations within these clusters result in monomeric forms of *lac* repressor (46, 47). The interactions that are responsible for the quaternary structure of the tetramer are almost entirely due to the association of the COOH-terminal helices, which is consistent with genetic analysis (8). Apart from the tetramerization domain, the surface area of a dimer that is buried when the tetramer forms is about 300 A^2, which is similar to the average surface area buried in a crystal lattice contact, about 250 A^2 (48). The arrangement of strong dimer contacts and weak tetramer interactions suggests that the observed tetrameric structure of the repressor is essentially a tethered dimer. There are no obvious reasons for the two dimers to associate with this particular geometry and one might expect that the pair of tethered dimers could adopt a variety of conformations. Comparing the quaternary structures of repressor, in the various crystal forms, demonstrates that the orientation of the two dimers is not fixed precisely. Repressor dimers could be arranged with their DNA binding domains pointing in opposite directions.

DNA binding and structure. In the crystals of the repressor-DNA complex, each repressor tetramer is bound to two independent, symmetric operator DNA double helices. The primary sites of interaction are concentrated in the HTH motif, which fits snugly in the major groove, and are consistent with the protection and synthetic DNA studies (9, 49). The orientation of the HTH motif with respect to the DNA is essentially the same as that observed with PurR (29) but unlike other prokaryotic HTH proteins of known structures. Because of the limited resolution of the co-crystal data, atomic interactions between the protein and DNA cannot be assigned in detail. However, residues Leu^6, Tyr^{17}, Gln^{18}, Ser^{21}, Arg^{22}, and His^{29} are close to the DNA, and their side chains most likely form direct base pair interactions with the operator in the major groove of the DNA. Substitution of the amino acid side chains at these positions result in repressor molecules that are incapable of binding to DNA and have an I$^-$ phenotype (24). From the position of the hinge helices, it is also likely that the pair of leucine residues at position 56 (one from each monomer) make direct contacts with the bases in the minor groove of the operator. These leucine residues are in close proximity to the center of the operator DNA and as also seen in the PurR structure (29), work as a lever to pry open the minor groove. The wild-type *lac* operator is asymmetric with an additional G-C base pair at the center of the operator. If we assume that the repressor binds the natural operators in a similar fashion, these leucine residues would introduce an asymmetry in repressor binding that is observed in the methylation protection data as well as the distribution of constitutive mutations (9).

Binding of the repressor to the 21-bp symmetric operator distorts the conformation of the DNA so that it bends away from the repressor with an approximately 60 A radius of curvature, slightly greater than the curvature for a nucleosome (50). Distortions on the DNA are localized to the center of the operator where there is a bend or kink of about 45° that results in the minor groove having a width of more than 11 A and significantly reduces the depth of the groove to less than 1 A. The central portion of the operator has a helical rise and a twist angle of 6.1 A and 22°, respectively. The DNA was observed to have a local unwinding of more than 50°, which is consistent with solution measurements (51). These distortions accommodate the hinge helices in the minor groove. The average helical parameters that describe the conformation of the DNA in the environment of the HTH are consistent with the canonical B form. When a single headpiece associates with a half-site operator site, data from solution NMR studies indicated that the entire DNA fragment was undistorted from canonical B form (26). The presence of the full operator seems necessary for the transition of the hinge region into an α helix, which in turn is responsible for the local DNA deformation. The two fragments of DNA bound to a tetramer of the repressor are separated by approximately 25 A and there are no interactions between these DNA fragments or with symmetry-related DNA fragments in the crystal structure.

The inducer binding site. The inducer molecule, IPTG, binds to the repressor at the interface of the NH_2-terminal and COOH-terminal subdomains. Since the IPTG molecule is pseudo symmetric, the inducer molecule could be fit to the density in two ways. Although the same side chain residues were used in both instances, the contacts to the sugar differ. The repressor can make either three or four hydrogen bonds to the IPTG hydroxyl groups. The orientation with four hydrogen bonds involves the amino acid side chain Asn^{246} with the O2 of the galactoside, Arg^{197} with O3 and O4, and Asp^{149} with the O6 position. The sugar binding pocket also has a hydrophobic surface formed by Leu^{73}, Ala^{75}, Pro^{76}, Ile^{79}, Trp^{220}, and Phe^{293}, and the isopropyl group of the IPTG is within van der Waals contact of Trp^{220}. The alternative orientation is seen in the *lac* repressor core fragment (27).

There exists a collection of altered repressor molecules that bind to the operator DNA with wild-type affinity but are incapable of induction (24). These repressor molecules, which are classified by an I^S phenotype, are either defective in sugar binding or cannot transmit the allosteric signal to the DNA binding domain. The I^S point mutations are scattered throughout the linear sequence of the protein but appear to cluster in five general locations that include residues 70 to 80, 90 to 100, 190 to 200, 245 to 250, and 272 to 277. In addition, residues Trp^{220} and Phe^{293} are also located within the binding pocket. Most of the I^S mutations are in close proximity to the sugar binding site, with the exception being mutations between residues 90 to 100. These residues form the first strand of the b sheet (strand B) within the NH_2-terminal subdomain and are at the dimer interface, suggesting that residues 90 to 100 transmit the allosteric signal.

The allosteric transition. Comparing the structures of the repressor in the three crystal forms suggests there are two distinct structural rearrangements of the monomer and the dimer, corresponding to the induced and repressed states. The conformation of the apo repressor monomer is extremely similar to the repressor in the presence of IPTG with an rms difference in the α-carbon coordinates of less than 0.4 A. In contrast, the rms difference between the uncomplexed repressor monomer and that bound to DNA is greater than 1.9 A for all α carbons. The repressor adopts a conformation in the presence of the operator that differs from both the unliganded and the inducer bound forms. When the NH_2-terminal and COOH-terminal subdomains in the induced conformation are superimposed independently on the corresponding subdomain of the repressor in the repressed conformation, the rms deviation in the α carbons is small (less than 1 A). These subdomains are structurally invariant and do not significantly change conformation when switching between states. However, the relation of the $NH_2$and COOH-terminal subdomains do change by what appears to be a small hinge motion.

This hingelike motion primarily alters the positional relations of the NH_2-terminal subdomains within the dimer changing the interface between the two NH_2-terminal subdomains. When the repressor binds to its operator DNA, these two subdomains rotate by about 10°, and their centers of mass move by about 2 A preserving the dimer twofold axes. The hinge motion does not alter the relationship between COOH-terminal subdomains in the dimer. The structural change between the induced and repressed states is most likely propagated via the hinge helices to the headpieces. The change in the dimer interface within the NH_2-terminal subdomain results in the displacement of the ᾰ carbon of residue 62, the first amino acid of the core. In the induced form of the repressor, this residue moves away from its twofold-related mate by about 3.5 Å which (i) disrupts the interaction of the hinge helices, (ii) frees the DNA binding HTH domains, and (iii) reduces the affinity of the repressor for the operator.

The allosteric transition appears remarkably similar to that observed in hemoglobin (17). The conformation of the repressor in the repressed state is analogous to the oxy form of hemoglobin or the R state while the repressor bound to inducer corresponds to the T state. In the induced state, the quaternary structure of the repressor, like deoxyhemoglobin, forms a number of electrostatic interactions across the dimer interface. Three electrostatic interactions between residues Lys^{84} and Glu^{100}, Gln^{117} and Arg^{118}, and His^{74} and Asp^{278} are observed in the induced (IPTG-bound) conformation of the repressor. In the repressed (DNA-bound) conformation, the ᾰ-carbon atoms of these residues move apart by over 3 Å and these interactions can no longer form across the dimer interface. The inducer molecule, IPTG, most likely performs the same role as the allosteric effector 2,3-bisphosphoglycerate, stabilizing the T conformation. Interestingly, a particular pair of residues that forms a salt bridge in the induced form of the repressor (His^{74} and Asp^{278}) is also used in hemoglobin and is responsible in part for the Bohr effect. It is possible that this interaction may be responsible for the pH dependence of repressor binding to operator DNA (52).

The structural basis for the allosteric transition of the *lac* repressor can be formulated in view of the observation that the induced conformation and the unliganded form of the repressor are virtually identical and differ from the repressed conformation. In the absence of inducer, the unliganded form of the repressor can adopt an alternative conformation when presented with operator DNA. In this conformation, the electrostatic interactions that hold the dimer together are broken, and the NH_2-terminal subdomains move apart. The stability of this complex therefore results from the interaction of the two headpieces with the DNA and the interaction of the two hinge helices. As a consequence, the repressed conformation of the repressor may locally destabilize the quaternary structure of the dimeric core. Binding of inducer to the operator-repressor complex causes a change in the quaternary structure of the core that propagates through the hinge helices, which destabilizes the repressor-operator complex. This conformational change allows the electrostatic interactions to reform between the NH_2-terminal subdomains of the core structure.

The role of the tetramer. The allosteric transition is observed within a dimer, yet the fully functional *lac* repressor is a tetramer. A comparison of the different states of the repressor tetramer show that the tethered dimers move apart, broadening the V-shaped structure by approximately 12° and the dimers twist by approximately 8° about their twofold axes on binding the operator. The relative orientation of the COOH-terminal tetramerization helices with respect to the inducer binding domains changes with the entire four-helix bundle translated about 2 Å away from the core.

Removing the COOH-terminal helix of the repressor results in functional dimers, which bind a single operator with virtually the same affinity as the tetramer (53) but with diminished induction ratios (20). To achieve maximal repression of the *lac* operon requires three operators suggesting that the tetrameric form of the repressor is required for maintaining the physiology of the system. Removing O_1, O_2, or O_3 reduces the repression ratios by varying degrees (20). A single *lac* repressor tetramer binds two operators that are separated by 93 or 401 bp. Since the repressor tetramer binds two independent pieces of operator DNA, a continuous DNA must bend to form repression loops (20, 54, 55).

There are two plausible mechanisms for creating these looped structures which are consistent with the architecture of the *lac* repressor tetramer. Two subunits of the tetramer can bind to the primary operator site and the other dimer subsequently can associate with an ancillary operator. Alternatively, free repressor dimers bind to separate operators and a loop occurs when the dimeric repressors associate into a tetramer. Like the hinge region (helix 4), the COOH terminal helices (helix 14) would undergo a coil-to-helix transition upon tetramer formation by associating into a four-helix bundle. Synthetic peptides made with the sequence of the COOH-terminal tetramerization domain associate cooperatively, forming four-helix bundles with no detectable intermediates (56). By either mechanism, the repressor acts like a double clamp, bringing two operators that are separated in linear sequence close together in space. The order of events is dictated by the concentration of the repressor in the cell, the dimer-tetramer association (57, 58), and the binding affinity of dimeric repressor molecules to the operators (59–61). The reported values for the several dissociation constants vary widely. Both mechanisms are plausible and may depend on the precise physiological conditions.

For the *lac* repressor to bind two distinct operators and form repression loops depends on the physical properties of DNA as well as the length of the intervening loop (62, 63). Since the two ancillary operators of the *lac* operon are separated by a different number of base pairs from the primary operator, the mechanism of loop formation in each case should be rather different. Forming stable looped complexes, particularly for relatively short stretches of DNA, may require additional DNA binding proteins which can dramatically change the physical properties of the nucleic acid. For example, CAP interacts with a DNA sequence between the primary and a secondary operator and kinks the DNA, inducing an approximately 90° bend over about 30 bp of DNA (64). This CAP-induced bending facilitates a single *lac* repressor tetramer to bind at O_1 and O_3, resulting in greater stability of the ternary complex (65).

It may seem paradoxical that a transcriptional activator (CAP) would stabilize or promote the repressed state. Monod extensively examined the diauxic behavior of bacterial cultures when glucose and lactose are present in the growth medium (66). Glucose is the primary energy and carbon source whereas lactose is an ancillary fuel that is used when the glucose supply becomes depleted. Repression loops between O_1 and O_3 most likely from when there are low concentrations of glucose (that is, an increase of cyclic AMP, promoting CAP binding) and lactose such that the bacteria need to reduce the baseline transcription of the *lac* operon to conserve energy. In this way the *lac* repressor and CAP proteins operate as an integrated switch that responds to the relative concentration of these metabolites.

A model of a 93-bp repression loop that corresponds to the *lac* operon DNA sequence −82 to +11 was constructed with a shape best described by the Folium of Descartes. The model for this repression loop positions the contact surface for RNA polymerase on the inside surface, providing an additional mechanism for preventing polymerase access to the promoter (67). This higher ordered structure efficiently prevents polymerase from fully engaging the *lac* promoter and thus maximizes repression (68). In addition, a closed DNA loop between O_1 and O_3 could facilitate the interaction of CAP with RNA polymerase, consistent with the observation that *lac* repressor accelerates messenger RNA synthesis upon induction (69).

Looping of DNA over long distances is a recurring feature of transcriptional complexes in both prokaryotic (70) and eukaryotic systems (71) and the quaternary structure of *lac* repressor may serve as a model for some eukaryotic regulators. It is likely that DNA binding proteins that regulate transcription would bind to the outside of the looped structures when the DNA is supercoiled and associated with histones or their analogues. The structural model for a repression loop, as described here, provides a physical depiction of how higher order complexes may regulate complex events within the cell.

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1.94×10^{-4} M DNA) and placement over a reservoir solution containing 29 to 31 percent PEG 3K in 0.05 M potassium phosphate (pH 8.5) and 0.075 M sodium potassium tartrate yielded larger crystals (1.0 mm by 0.5 mm by 0.5 mm) suitable for data collection.

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Dr. KREBS. No, no; I mean, it is my coffee table book of the moment, actually, at work, and what is interesting there is that it is a protein that interacts with the gene responsible for digestion of lactose, you know, sort of a common nutrient in most complex organisms.

Senator JOHNSTON. But different from that fat substitute?

Dr. KREBS. Yes; different from fat. This is milk, you know, a milk sugar. And people figured out how the gene worked about 30 years ago. In 1965 two Frenchmen received Nobel Prizes for determining the functioning of both the lac gene and how this repressor chemical interacted with it to stop the digestion of lactose when there was no more lactose there. And it has been 30 years since they have been able to actually figure out how the protein looks, and now we know, and the only technique that would have allowed us to know was the capability of our synchrotron light sources.

There is a major acknowledgement at the back of the article, so you really have to look back. If you did not know, you would have to look in the back of the article, and there is an acknowledgement to the Structural Biology Center at Argonne National Laboratory and to the support staff at the National Synchrotron Light Source at Brookhaven.

So, this is the kind of contribution that if we have to leave these machines behind and in some sense or other this kind of research will be delayed or in some ways impeded.

BORON NEUTRON CAPTURE THERAPY

However, in addition to these examples, we have also made progress in nuclear medicine this year. You may be familiar, I know that I was asked questions in previous hearings about progress with boron neutron capture therapy. We began a protocol about 1½ years ago. In the last year, we have treated 14 patients. We have extended their lives although only eight of them are currently survivors, but certainly the quality of their lives have been improved over that if they had been treated with radio——

Senator DOMENICI. Could you go over that again?

Dr. KREBS. Fourteen people were treated with boron neutron capture therapy.

Senator DOMENICI. For what?

Dr. KREBS. For a brain tumor called glioblastoma, and eight of them have survived at this point. We are changing the protocol to increase the amount of boron that can be injected——

Senator JOHNSTON. One out of seventeen, is that it?

Dr. KREBS. Eight out of fourteen. But the survival rate was normal for that. They only survived somewhere between 6 and 12 months, but the quality of life that they had by comparison to those who are treated with radiation or chemotherapy, I think was much improved.

Senator DOMENICI. Is that what Congressman Synar died of?

Dr. KREBS. Yes.

Senator JOHNSTON. Larry Craig is very interested in that. We have had hearings in the Energy Committee. There was some evidence—excuse me if I am interrupting.

Senator DOMENICI. Go ahead.

Senator JOHNSTON. There was some evidence put forth in that hearing that boron neutron capture therapy might be the key that deals with it, that you could really destroy the tumor by doing this. Does that tend to be disproved?

Dr. KREBS. We have not demonstrated that yet. These protocols, as you know, are very conservative and we started with what we thought was a dose of boron that could be increased, but because the boron compounds could have their own side effects, we wanted to proceed in a deliberate way.

The results of the last treatment have indicated that we can increase the boron dose, and we will. We are hopeful that we might see some stronger effects on actually stopping the tumor at this point.

Senator JOHNSTON. Thus far, with the low doses, boron is not stopping the tumors?

Dr. KREBS. It has not yet, no. It does not appear to have stopped them.

Senator DOMENICI. My staff says the Japanese are doing something in this area and having some degree of success; is that correct?

Dr. KREBS. The Japanese have been doing something. The character of the research has not been as systematic as we believe we are carrying out, and there has been a lot of controversy over the past years about whether or not, first of all, they have been treating the same condition. They have had some successes. I mean, there have been six people, I believe, that was the last thing I heard, whose cancer was stopped, or whose condition was stopped, but they use a form of exposure to radiation that is very different from ours.

They put people in treatment for 7 or 8 hours. They have to expose the brain. And our is a much advanced, and, I think, more humane approach.

Senator JOHNSTON. The Japanese or——

Dr. KREBS. The United States' approach, much more.

Senator DOMENICI. Let me ask, when you do this, radioactivity is involved, right, on these 14 people?

Dr. KREBS. Neutron doses.

Senator DOMENICI. We now have people digging up what scientists did 30 years ago in experimenting with radiation on people that were going to die, and we had big complaints and headlines that scientists used humans as guinea pigs. I assume this is all very open and above board and done under a modality that is accepted by a number of people so we do not have criticism of it.

Dr. KREBS. We cannot proceed with this without FDA approval of both the therapy and the drug use, and in order to get that approval we have to have patient consent forms that meet all the tests.

Senator JOHNSTON. There is not much hope for those people.

Dr. KREBS. But we meet all the tests that are required.

Senator DOMENICI. I am not even suggesting I know whether the tests that are required are right. I was just asking a general question so that we do not wake up in 6 months and have somebody attacking this research.

Dr. KREBS. Right. We believe that we are satisfying all the requirements.

Senator DOMENICI. Very conservative, I assume.

USER FACILITIES

Dr. KREBS. Right. In terms of also delivering on our commitments, in 1996, you funded us to increase service at our user facilities. In terms of improvements from 1995–96, our user facilities in the high energy and nuclear physics programs, Basic Energy Sciences Program and our Computational and Technology Research

Program, will increase from 65,000 hours to 80,000 hours. The numbers of users will increase from just under 17,000 to somewhere between 18,000 and 20,000 users.

We have brought new facilities on line. The continuous electron beam accelerator facility began operations last year. It has over 700 users nationally. It has just begun its second experiment. We are going to be going out to Chicago next week to dedicate the advanced photon source. These two facilities came in on time and on budget.

FACILITY CONSTRUCTION

We have facilities under construction, the relativistic heavy ion collider for the Nuclear Physics Program at Brookhaven is moving along. Because of reductions made last year, there will be some increases in the total project cost and we can explain those two in more detail probably for the record.

[The information follows:]

RELATIVISTIC HEAVY ION COLLIDER

Inherent in the previous project baseline of RHIC was a significant amount of schedule risk. This risk was due to a reduced annual funding profile introduced in fiscal 1994 by the Nuclear Physics Program because of reduced overall funding. At this time, major industrial contracts for superconducting magnets were in place which had been negotiated under the assumption of the original funding profile. Following advice of a technical review committee, it was decided to honor those existing industrial contracts in order to avoid the major cost increases of renegotiated contracts. The resulting cash flow problem was addressed by rescheduling the allocation of project contingency until late into the project. The baseline based on this strategy, however, did not provide flexibility for further annual reductions without significant increases in costs and schedule. The loss in buying power, resulting from the $5 million reduction in construction funding in fiscal 1996, is not restored until fiscal 1999 when the project is scheduled to be completed. Although the cash flow problem was mitigated by the addition in fiscal 1996 of $3.5 million in operating and capital equipment funds from within Nuclear Physics Program total funding, a three-month delay was caused by the reduction in the level of Capital expenditures. The RHIC core technical team which is now engaged in completing the construction project and commissioning the facility must be maintained until operation. Of the $11.6 million increase in total estimated cost, $4.2 million arises from labor cost increases due to stretching out projection and assembly schedules, materials increases related to delayed procurement, and the escalation on the amount of budget authority that was deferred to fiscal year 1999. The remaining $7.4 million arises from the need to support RHIC Project personnel for three extra months before the beginning of operating support.

HIGH ENERGY PHYSICS

Dr. **KREBS**. In the High Energy Physics Program the main injector and the B-factory are continuing in construction on time and within cost. In the Biological and Environmental Research Program the Environmental Molecular Science Laboratory at Richland is also proceeding on time and maybe a little better than was originally scheduled.

We are engaged in negotiations with CERN for United States participation in the large hadron collider. We believe that we will have something on that to bring forward by the end of this fiscal year to discuss with you, and with others in Congress, and the administration.

GENOME PROGRAM

Within the Human Genome Program, the clone libraries, the data bases, and the automated technology have enabled and advanced the mapping efforts in the program and have also enabled specific sequencing of disease genes linked to breast cancer and colon cancer. We have, perhaps not with as much enthusiasm as with some of these other things, have proceeded to restructure programs as you have directed. In fusion, we were given a very clear but difficult message that has had tremendous human and institutional impact on individuals but also on major laboratories.

FUSION PROGRAM RESTRUCTURING

We have used advice from the fusion community, and others, to intellectually reposition the programs toward a science focus, to look at alternative concepts, to move from the large experiments we have conceived of in the past, at least for the domestic program, toward smaller- to medium-scale experiments and we have revisited our international participation in ITER and viewed it from a science perspective and have continued within the 1997 budget to have a significant but diminishing contribution, and certainly as we look forward to what will happen when ITER goes to construction, a much diminished participation, but nonetheless a participation to take advantage of the science.

SCIENCE EDUCATION AND TECHNOLOGY TRANSFER

We have also restructured the science education and lab tech transfer programs, which because of fiscal year 1996 funding reductions I think are great losses in using the assets of our laboratories in particular.

RESEARCH INTEGRATION

With respect to research integration, let me talk about three areas very quickly.

Our materials, chemistry and engineering programs in basic energy sciences have always been conceived of and executed in conjunction with the missions of our energy technology programs.

In the past, we have mostly focused on new energy conversion, higher performance and efficient, energy technologies. In the future, we are moving forward not only to continue that but also to include a focus on pollution minimization because they go hand-in-hand and we are working together with our colleagues in energy efficiency and renewable energy, fossil energy, and nuclear energy.

You directed last year that energy research and environmental management collaborate in a basic science program to support the environmental management activities. We went out in early February with a request for applications to both laboratories and universities. We received about 2,200 preapplications.

We sent back a request to 775 of those proposers that they provide us with a longer peer reviewable proposal. The energy research staff is excited. The scientific community that we work with is very excited. I think the key for results is stable funding and committed use of peer review.

In the area of collaboration with the national security programs, we have looked for ways to coordinate our computational, our mathematical, information, and computer sciences programs into collaboration with defense program's effort in the advanced scientific computing initiative. We see this as something that will not only take advantage of and provide better computing tools for both the science mission and the national security mission, but also will enable energy research scientists and facility users to operate more efficiently with our user facilities.

That will be a major focus, to make our user facilities more efficient, to enable them to be used at a distance, if you will, so that—and by that I mean we have experiments going on, for example, in collaborations between fusion and our computational program to enable people to use, for example, the Alcator C–MOD at MIT from California.

We are building capability into the Environmental Molecular Science Laboratory that will enable people who want to use the new magnetic resonance facility from their sites at whatever university they may be. At the advanced light source, one of their beam lines is being instrumented so that it can be used from a distance, and I think as we have less money in research, it is going to be crucial to enable people to be as efficient as possible.

Another area of collaboration or, at least, planning, collaborative planning at this point, is neutron science. It is becoming clear that neutron science is becoming more interesting in defense programs. It has always been interesting for the science programs and we are looking for ways to maximally utilize the capabilities of our facilities but it may cost you money.

CUTTING COSTS

In terms of cutting costs, as you noted, there is a very small increment in our budget between 1997 and 1996. In large measure, we are eating inflation in many of our programs. If in some cases, they are reduced, delivering the quality of science and the service to users depends primarily on our laboratories reducing costs and the DOE and the laboratories reducing unnecessary work.

The labs deserve a lot of credit basically across the board. They have been working very hard at this. The Secretary has committed the Department. Energy research has been looking at its own processes and procedures and this is something that is easy to do when funding is stable. When it is not stable, it is easy to cut muscle and bone irreversibly and I think we are getting close to that.

NEW OPPORTUNITIES

So, our request for 1997 is pretty much a bare-bones budget. We do need to look at, even under these circumstances, new opportunities and sometimes challenges. Those opportunities and issues that I think we will be engaged in in the future, if not today, are things like the character and nature of our participation in the large hadron collider, eminence in neutron science, not only in terms—not simply preeminence. Clearly the spallation neutron source, if we could decide jointly to go forward with that, would provide us with preeminence; but also the Basic Energy Science Advisory

Committee has given us advice on some upgrades that would enable eminence.

I think that, again, is something that jointly has to be reviewed. I have to take it up my chain of command and then we will be happy to talk with you about it. In fusion, we have to start delivering science again. That is why we are engaged in investments in plasma science and alternates. We want to move forward with high throughput sequencing in the Genome Program and just maintaining the base of people, our facilities and then the research institutions that our laboratories represent.

I think we do exciting things in energy research. We support it. Our researchers and facilities are at the frontier. We make a difference to the DOE mission and we have contributions beyond the Department. I think the Government needs to maintain the capability that energy research represents because I think it is the future of our ability to create new technology and maintain economic advancement for our grandchildren, and it depends on investing today.

PREPARED STATEMENT

I want to work with you and I am prepared to answer questions.

Senator DOMENICI. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF MARTHA A. KREBS

Mr. Chairman and Members of the Subcommittee: I am pleased to be here today to present the fiscal year 1997 budget request for the programs supported by the Office of Energy Research (ER). These programs are: Basic Energy Sciences, Fusion Energy Sciences, High Energy Physics, Nuclear Physics, Biological and Environmental Research, Computational and Technology Research, Energy Research Analyses, Multiprogram Energy Laboratories-Facilities Support, University and Science Education, and supporting program direction.

ER's fiscal year 1997 request, which is shown in Figure 1, is earmarked for maintaining the U.S. leadership in performing fundamental science, maintaining scientific facilities, and building the Nation's scientific and technical strength. ER is working with university, industrial and national laboratory research partners to multiply the effectiveness of its activities.

FIGURE 1.—*Fiscal Year 1997 Congressional Budget Submission*

	Millions
Nuclear physics	$318.5
Biological and environmental research	379.1
Computations and technology research	158.1
Basic energy sciences	653.6
Fusion energy sciences	255.6
High energy physics	679.1
All other	104.6
Total	2,548.6

The Office of Energy Research (ER) invests in basic research to enable the Department to succeed in its science and technology intensive missions. Our programs produce scientific and technical knowledge needed to create new and improved energy and environmental technologies and to maintain U.S. scientific leadership in understanding energy and matter. They also provide facilities for research in the physical and life sciences needed by U.S. researchers for forefront research.

The National Role of Energy Research—Federal Basic Research—Fiscal Year 1996 Budget Request

[In billions of dollars]

NIH	6.3
NSF	2.1
Energy research	1.9
NASA	1.8
DOD	1.2

DOE's research and scientific facilities help secure the Nation's capability to excel in science and engineering. The Office of Energy Research is committed to replenishing America's pool of scientific talent. We ensure that the national laboratory system supports the Nation's efforts to enhance development of a well-educated, scientifically literate, and diverse work force. ER's programs encourage and seek the contributions of traditionally under represented students and institutions, and small and disadvantaged businesses. Our research at universities, an inherent part of the educational process, helps educate and nurture the next generation of scientists and engineers.

The knowledge, techniques, and instruments developed in the diverse programs of the Office of Energy Research are applied in many areas. These applications include high efficiency energy recovery and use technologies, therapeutic and diagnostic medical applications, and an array of applications in industry and other scientific areas in addition to contributing to the U.S. economic and national defense capabilities.

Recent Energy Research Achievement

Shared Nobel Prize in: 1994 physics; 1995 physics and chemistry
Top quark production at Fermilab
World record in tokamak fusion test reactor
First beam in advanced photon source
Human Genome Program—1996—Completed maps of two human chromosomes

Highest program priorities in fiscal year 1997 are to sustain the progress made so far in high-energy physics and nuclear physics, to enhance the scientific foundations of the fusion program, and to expand selected programs including optimized use of the department's scientific and computational facilities. The program will strive to leverage more research funds through increased partnerships.

THE RETURN ON INVESTMENTS IN ENERGY RESEARCH

Basic research supported by ER is increasingly important to America. As reported in the Wall Street Journal, "Some of the biggest U.S. Corporations have cut back sharply on research into 'basic science'—the exploration of how nature works at a fundamental level—to pursue short-term goals and to commercialize products more quickly." As 16 chairpersons and CEO's of major U.S. corporations wrote to the Congress, "History has shown that it is federally sponsored research that provides the truly patient capital needed to carry out basic research and create an environment for inspired risk-taking that is essential to technological discovery." As noted by a member of the Secretary of Energy Advisory Board, "DOE cannot succeed in its science and technology intensive national defense, energy, and environmental stewardship missions without excellence in science".

Our research is producing benefits today. ER's current investments are extending the frontiers of knowledge and contributing to addressing many of the Nation's most pressing concerns and priorities.

ENERGY RESEARCH'S VARIED PROGRAM

90 percent of U.S. high and nuclear energy physics
90 percent of U.S. fusion R&D
World class research and user facilities (accelerators, etc.)
High performance computing
Bioremediation of radioactive mixed waste
Human genome research and databases
Computer simulation of nuclear testing with Defense programs
Global climate change research and databases
Artificial intelligence and robotics

In 1995, research supported by the Office of Energy Research was cited in four of the five Nobel Prize awards in physics and chemistry. The award winning physicists discovered the neutrino and the tau lepton, key steps in identifying the fundamental particles in nature. Our chemistry award winners found the effect of freons on the ozone layer in the Earth's atmosphere and the effect of humankind on the environment.

ER research to improve productivity of its high speed computing and communication network (ESNet) pointed the way to technology that can accelerate growth of the information highway by doubling data transmission rates over telephone lines. Other ER supported scientists unveiled a new "warmer" superconductor using a new metal and ceramic tape may be the key to rapid and widespread use of these materials for revolutionary energy savings technologies. In the human health area, our human genome research uncovered the genes thought responsible for certain breast and colon cancers. After a decade of intensive international searching, physicists working at an ER laboratory found the elusive atomic particle—the quark—needed to round out our current understanding of the constituents of all matter.

Soon to be the world's brightest sources of hard x-rays, ER's Advanced Photon Source is a beacon for crystallographers, solid-state physicists, structural biologists, and materials scientists to look inside and understand the structure of materials and important molecules. ER researchers in Virginia in 1995 started the first experiments at the Continuous Electron Beam Accelerator Facility. The Tevatron accelerator at Fermilab set a world record for particle beam luminosity. We completed the Radioactive Ion Beam Facility at Oak Ridge National Laboratory that allows scientists to learn the properties of unstable nuclei encountered in astrophysics.

Each year, R&D Magazine presents awards to inventions with exceptional industrial promise. In 1995, R&D Magazine recognized inventions engendered by ER-supported basic research with seven R&D–100 Awards. The 1995 award-winning technologies will aid in soil cleaning, ultrasonic imaging, and emissions monitoring. On another front, weather researchers and analysts world-wide are eager to see what surprises come out of ER sponsored Greenhouse simulations that more realistically model the effects of absorbent clouds.

ENERGY RESEARCH GOALS

World leadership in energy science
New insight into the nature of energy and matter
The best research infrastructure for energy science and basic research
High quality, highly productive, widely known, valued, and trusted programs
Protection of our workers, the public and the environment during the support of and conduct of research

PROGRAM GOALS AND STRATEGIES

Consistent with the Department's Strategic Plan, ER has identified five goals that sustain our longstanding traditions of emphasizing scientific excellence and working in partnership with other organizations dedicated to advancing energy and supporting science. Reaching them will help provide America with the range of energy and policy options it needs for future prosperity. The goals are:

—Enable the United States to maintain a position of world leadership in science, mathematics, and engineering needed to enhance energy productivity and ensure reliable energy services while preserving human and environmental health and safety.

—Build and operate the best and most advanced scientific research facilities and infrastructure to advance the frontiers of science.

—Ensure that ER's programs are of high quality, highly productive, and that they are widely known, valued, and trusted.

—Ensure that ER programs protect our workers, the public and the environment during the support of and conduct of research.

Strategies to support our goals reaffirm our traditional reliance on merit review with peer evaluation of investigator-initiated proposals as we seek new directions for our research programs. These programs will help expand the Nation's human and intellectual resources to ensure that America's capabilities for scientific and technological innovation are constantly replenished. The strategies are:

—Support science with a purpose. To warrant Office of Energy Research support, a research project must advance knowledge in key fields and disciplines, further pursuit of departmental missions, or enable timely response to national goals.

—Provide large scale facilities. ER supports primarily the large and complex research facilities which help meet the Nations science and technology goals but are too expensive for a single institution or group of institutions to build. We make the facilities available for the best research proposed by university, industrial, and government scientists as decided by peer review.

—Coordinate research on complex national problems important to DOE missions. ER programs coordinate and fund multidisciplinary research on complex national problems requiring a long investment horizon to find satisfactory solutions. The problems are found in areas such as advanced materials and processing. The National Laboratories, with their multidisciplinary teams, are special resources for coordinating and performing this research.

—Assure excellence in research. We emphasize initiation of proposals by investigators and select the best using peer review. Our program managers measure research quality with scheduled periodic evaluations, including assessment by panels of technical experts. For excellence in the future, we reach out to improve the quality of and access to science, mathematics, and engineering education to replenish America's storehouse of scientific talent.

—Continuously improve the quality of our administrative processes. We increase our effectiveness and productivity by improving program management practices and by using performance based contracts with our laboratories. Quality improvement includes leveraging resources through domestic and international partnerships. ER's programs seek out America's excellent scientists, employees, and contractors.

—Advocate effectively the role and relevance of the research we support. We are reaching out more than ever through presentations, newsletters, and the Internet to inform the public about the exciting results of the research we support.

ENERGY RESEARCH STRATEGIES

Peform science with a purpose
Coordinate multidisciplinary research on complex national problems
Provide large scale facilities and technology for doing science
Catalyze excellence in research
Continuously improve quality
Advocate effectively the role and relevance of energy research

ER managers use a variety of mechanisms to measure program performance and maintain continuing attention to evolving national needs, chief among them peer review. As in other Federal basic research agencies, ER program managers primarily use proposal peer reviews (before work begins as part of the selection process) for research performed by others, usually universities. They primarily use in-progress peer reviews (what is being or has been accomplished after work has begun) for research performed by the Agency's own laboratories. DOE laboratories conduct their own independent peer reviews as a quality assurance measure. It is required by their performance based contracts with the DOE.

Performance measures used to evaluate the ER program are: (1) Quality of the basic science as indicated by expert advisory committees, peer reviews, sustained progress, recognition by the scientific community, and world class research facilities; (2) Relevance to DOE missions and national needs, for example, by supporting energy technology development and joining research efforts with others; (3) Effectiveness and efficiency of construction and operation of research facilities as indicated, for example, by meeting user needs, achieving performance specifications, meeting schedule and cost milestones, and making possible research at the forefront of science; and (4) Good research program management, for example, quality of research planning, meeting budget projections and milestones, and good decisions in managing and redirecting projects.

IMPLEMENTING THE PROGRAM

Through its fiscal year 1997 budget request, ER will continue to seek the most promising and highest quality investments in research and facilities. The projects ER supports annually cover a wide range of DOE mission related disciplines of the sciences and engineering and all levels of education. The research and energy communities have direct input into ER's funding decisions; this year, for example, several thousand researchers and educators will participate in the process of reviewing proposals submitted to the program. Five standing advisory committees—in basic energy sciences, biological and environmental research, high energy physics, nuclear physics, and fusion energy sciences—provide periodic and invaluable advice on program direction, content, quality and productivity.

PARTNERSHIPS FOR INCREASED PRODUCTIVITY

To leverage the public's investments we are working with university, industrial, and national laboratory research partners to increase the effectiveness of our activities. The most productive R&D efforts are those in which science and engineering work together, concurrently. With the fiscal year 1997 program, we commit ourselves to this model or paradigm for research productivity.

ER programs are important in interagency activities coordinated by the National Science and Technology Council, and promote international cooperation and cost-sharing.

We will do this in the Partnership For A New Generation Of Vehicles (PNGV), in global change research, in human genome R&D, and in R&D for the National Information Infrastructure (NII).

ER programs continue to strengthen science and technology partnerships within the department. Several key areas—Environmentally Responsive Technologies of the Future, DOE 2000, Industries of the Future, Computational Geoscience and Bioremediation Science—hold untold opportunities for technological advances to meet the Department's missions. ER program managers continue to strengthen collaborations with the Office of Environmental Management and the Office of Energy Efficiency and Renewable Energy.

In partnership with the Office of Environmental Management, the Basic Energy Sciences and Biological and Environmental Research programs perform fundamental research that addresses problems in environmental management, remediation, and restoration that are intractable without new, fundamental scientific information and technologies. In Partnership with the Office of Energy Efficiency, ER programs perform basic research in support of the Partnership for a New Generation of Vehicles. This research helps to bridge an R&D gap between the Department's fundamental research and its other programs.

MAINTAINING THE SCIENCE USER FACILITIES INITIATIVE

Essential to many of the programs of the Office of Energy Research is access to a broad variety of facilities and laboratories. The facilities include large accelerators, experimental detectors, and reactors, high-precision instruments, synchrotrons, massively parallel computers, high-capacity networks, and high-resolution microscopes. Each of the facilities contributes unique research capabilities to the Nation.

About 18,000 DOE and non-DOE sponsored scientists from industry, university and government conduct unique, cutting-edge experiments at the Department's basic research user facilities each year. The light sources alone are used by about 4,000 researchers annually for basic research in such important areas as polymers, alloys, semiconductors, superconductors, magnetic materials and structural biology. In many research areas, U.S. industry relies heavily upon the Department's facilities to conduct experiments that would otherwise be too expensive, or even impossible, to carry out in the United States.

I am particularly proud of this aspect of our program for it not only sets us apart from the other Federal agencies that support science, it ensures that our Nation will maintain its world leadership across a multitude of scientific disciplines. I am committed to supporting the best scientists in the world at our first-rate facilities, to managing these facilities in an efficient, cost-effective way consistent with all matters of environmental compliance, and to measure ourselves continually, as we have in the past, by peer review of our products and our performance.

With the Science User Facilities Initiative started in fiscal year 1996, ER increased access to its basic research facilities. This initiative, affecting 23 user facilities nationwide, increased the number of users at many of our facilities by about 30 percent and supports the President's commitment, articulated in "Science in the National Interest," to make investment in science and its infrastructure a top priority. We are maintaining support for this initiative in fiscal year 1997. Approximately 20 percent of Initiative funds will be provided directly to user groups through competitively awarded grants.

SUSTAINING HIGH ENERGY AND NUCLEAR PHYSICS

The Department of Energy remains the primary steward of high energy and nuclear physics in the country. Part of this is historical, related to the origins of these programs in the Atomic Energy Commission, but most of it is related today to the fact that the Department sponsored researchers are world leaders in this forefront area of physics, and in the design, construction, and operation of the kinds of facilities that are needed to pursue this research. In particular, scientists supported by our High Energy Physics program in the past year have found the "top quark," rounding out the picture of the physical world at its most fundamental level. Continuing U.S. leadership of this sort over the next several decades will require continued investment in national and international research.

The ER high energy physics program continues its preparations for U.S. participation in the Large Hadron Collider project at CERN. This activity enables the U.S. to participate in new discoveries at the highest energy frontier. We plan to complete the B-factory project at the Stanford Linear Accelerator Center in fiscal year 1998 and the Main Injector project at Fermilab in fiscal year 1999. Both projects are on schedule and within estimated costs. The Main Injector will provide a doubling of intensity for the fixed target program and a fivefold increase in luminosity for collider experiments. This will let us take a closer look at the nature of the top quark. The B-factory will enable scientists to study charge-parity violation, a process that accounts for the complete dominance of matter over antimatter in our universe and, therefore, our very existence.

In the nuclear physics program, construction will continue at Brookhaven National Laboratory on the Relativistic Heavy Ion Collider (RHIC). This facility will provide an unparalleled opportunity to study the subcomponents of nuclei (quarks) as they move freely through hot dense nuclear matter. The Continuous Electron Beam Accelerator Facility (CEBAF) in Newport News, Virginia, began full-scale operation in fiscal year 1996. Designed to probe the quark structure of matter, CEBAF is already generating intense interest from the scientific community. Users from a community of over 1,000 scientists in about 200 research institutions have already scheduled beam time at the facility.

BUILDING A NEW FUSION ENERGY SCIENCES

The fiscal year 1997 budget submission reflects a restructured fusion program, with a change in focus from a narrowly-defined energy technology program (based upon the tokamak concept) to a broadly-based scientific program that emphasizes cost-effectiveness and innovation. The restructured program, proposed in the Fusion Energy Advisory Committee report, "A Restructured Fusion Energy Sciences Program," will explore the critically-important basic science and technology foundations necessary for a future push toward commercially and technologically viable fusion power. The restructured program will pursue energy applications of fusion through its continued involvement in international collaborations. The requested funding level will allow the exploration of previous investments in facilities and personnel and an orderly transition to new priorities, including an academically-based plasma science initiative.

TARGETED RESEARCH INVESTMENTS

Before briefly discussing each of the ER programs I would like to highlight selected areas that receive special attention in the fiscal year 1997 budget request.

DOE 2000.—The fiscal year 1997 request provides initial funding for the joint Energy Research and Defense Programs DOE 2000 Initiative that applies advances from recent high performance computing and communications research to extend the availability and utility of our laboratories and user facilities. The scientific power of the national laboratories will become more accessible to university, industry, and national laboratory researchers. Scientifically important capabilities of the DOE "weapons" laboratories will become accessible for unclassified research from across the United States. Scientists dispersed across the Nation will find it possible to use DOE experimental facilities and work together on problems as easily as if they were in the same building.

Research will proceed in two thrusts. Tools and networks to permit scientists and engineers working at dispersed laboratories to use national laboratory facilities and to collaborate in solving problems will be emphasized first. The second thrust will focus on scientific computation tools, other software, and computer infrastructure to enable computer simulation to be used in place of experiments that are too dangerous, too expensive, or simply inaccessible by other means.

Computational Geoscience, Oil and Gas.—Our fiscal year 1997 request provides for continuation of a small and innovative program in computational geosciences. A new multidisciplinary field, computational geosciences uses advanced mathematical and computational approaches, many of them products of nuclear weapons R&D, to characterize and interpret fluid flow underground. The research emphasizes underlying general principles and phenomena. For this reason, it will serve the oil and gas, environmental restoration, geologic disposal of radioactive and hazardous wastes, and geothermal energy mission areas of the Department.

We are excited about this new basic research effort because it opens new avenues in understanding the subsurface behavior of oil, gas, geothermal fluids, liquid wastes and water. This activity capitalizes on the interdisciplinary strengths of the DOE laboratories and it integrates research performed at DOE laboratories and universities for ER and other DOE programs, and research by the oil and gas industries, under common goals. Extensive customer input, gathered with the help of the National Academy of Sciences and others, provides the basis for selection of research areas.

Human Genome.—The Department carries out its share of the Human Genome Project (HGP) in full collaboration with the National Institutes of Health and the international community. The ultimate goal of the entire Human Genome Project (HGP) is to decipher all the three billion DNA subunits that are the genetic code within each human cell. Currently only 2 percent of the human DNA sequence is known. In order to complete the task in a timely and cost effective manner, DNA sequencing technologies need improvement.

The Department's genome program is heavily oriented toward technology development which has resulted in a rapid advancement in technologies that promise to significantly increase the speed and decrease the cost of DNA sequencing. For example, improvements in sequencing and automation technologies that could increase DNA sequencing throughput tenfold have entered the pilot production stage. Reliable DNA clones for genome sequencing have also been developed as have new molecular labels that provide stronger, more regular, and more easily detected signals for DNA sequencing. In addition, a newly designed enzyme that greatly improves the quality of DNA sequence data is now commercially available.

An important component of the Department's HGP is the continuing study of ethical, legal and social issues (ELSI) related to the availability and use of genomic information. Among the accomplishments of the ELSI program are: a model genetic privacy law that has been introduced in the legislatures in eight states; a series of workshops on genetics to assist judges in evaluating the relevance of genetic evidence; and high school curriculum units that help students understand both the science and the societal implications of the information coming from the HGP.

During fiscal year 1997, the Department's HGP will place increased emphasis on enhancing automated high-throughput DNA sequencing. In the process of evaluating and implementing these new technologies, an additional 3 percent of the human genome will be sequenced. A second major goal during fiscal year 1997 will be expanding access to and usefulness of the available genomic information. Programs are being developed that will allow the entire scientific community to contribute to the human genome knowledge base. The available sequence information will be used to assemble a complete physical map of the human genome, that identifies unique DNA marker sequences for the majority of human genes.

Global Change Research.—The prediction of global climate change is a key to intelligent decision making on a host of issues relating to the stewardship of the planet. A critical issue among these is energy usage and its effects. The global change program at DOE focuses on research that will enable long-term prediction of climatic effects. This research provides knowledge for informed energy policies. Better information for decision makers means greater assurance that minimum economic and human hardship will result from energy policy decisions in the present and in the future.

Through the ARM program, sites in climatically significant regions are being thoroughly instrumented to provide data critical to improving general circulation models (GCM's) so that these important computational tools can be used to provide reliable predictions of climate change under various scenarios of human activity. The Computer Hardware and Mathematical Models Program (CHAMMP) is providing research to bring many of the GCM's up another notch technically so that advances in parallel processing and other aspects of advancing computer technology are utilized and brought to bear on the prediction problem as quickly as scientific validity permits.

Bioremediation Science.—Bioremediation promises a way to significantly reduce the cost and improve the effectiveness of remediation of DOE's contaminated sites. This technique uses living organisms to reduce or eliminate environmental hazards resulting from accumulations of toxic chemicals or other hazardous wastes. Bioremediation has been implemented successfully for degradation of petroleum hydrocarbons and, to a limited extent, degradation of explosives and chlorinated hydrocarbons, as well as for immobilization of toxic trace metals.

The fiscal year 1997 request provides for ER leadership of the Natural and Accelerated Bioremediation Research (NABIR) Program that builds on the expertise of the ER's Biological and Environmental Research program in subsurface biology and genome research. NABIR emphasizes fundamental research on in situ bioremediation of soils and groundwater. Additional knowledge applicable to ex situ waste treatment schemes will be learned and transferred. In fiscal year 1997, ER will expand its exploration of the world of microbial diversity, mapping and sequencing the genomes of microorganisms for possible use in bioremediation.

Environmental Technologies For The Future.—In addition ER supports fundamental research needed to assess the potential environmental consequences of human activities on the sustainability of essential environmental systems and resources. Such research builds on BER's tradition of sponsoring fundamental research in the environmental and life sciences, and is motivated by the Office of Energy Research's commitment to supporting the Department's mission to provide technical information and the scientific foundation needed to improve and maintain environmental quality.

These initiatives, from scientific facilities to environmental technologies for the future, account for the increases in the ER budget from fiscal year 1996 to fiscal year 1997. In parallel, the request in several areas decreased from fiscal year 1996 to fiscal year 1997, due to the successful completion of work or because program directions changed. Construction will be completed on two facilities for genome research. Several congressionally mandated projects will be completed. Support for the AMTEX partnership will be transferred to Energy Efficiency and Renewable Energy (EE) DOE.

THE ENERGY RESEARCH PROGRAMS

Fiscal year 1996 Appropriation—$2485.2 M [1]; fiscal year 1997 request—$2548.6 M (Figure 1).

ER's budget request of $2,548.6 million for fiscal year 1997 is shown in Figure 2. ER is seeking $653.6 million for its Basic Energy Sciences (BES) program, $379.1 million for its Biological and Environmental Research (BER) program, $679.1 million for its High Energy Physics (HEP) program, $318.5 million for the Nuclear Physics (NP) program, $255.6 million for the Fusion Energy Sciences (FES) program, and $158.1 million for Computational and Technology Research (CTR). The request includes $19.9 million for the University and Science Education program, $28.9 million for the Multiprogram Energy Laboratories Facility support program, $11.6 million for General Science Program Direction, $42.2 million for ER Energy Supply Program Direction, and $2.0 million for Energy Research Analysis.

I will summarize the ER programs and appropriation, namely Energy Supply Research and Development and General Science Research.

ENERGY SUPPLY RESEARCH AND DEVELOPMENT PROGRAMS

BASIC ENERGY SCIENCES

Fiscal year 1996 Appropriation—$654.6 M; Fiscal year 1997 Request—$653.6 M (Figure 2)

The Basic Energy Sciences (BES) program is a principal U.S. sponsor of fundamental research in broad areas of materials sciences, chemical sciences, geosciences, biosciences, and engineering sciences. This research underpins the DOE missions in energy and the environment, advances energy related basic science on a broad front, and provides unique national user facilities for the scientific community. The program funds more than 2,400 researchers at 200 institutions nation-

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[1] Includes a $35 M general reduction for use of prior year balances.

wide. Over one quarter of BES funds go directly to support research at academic institutions.

FIGURE 2.—*Basic Energy Sciences*

	Millions
Chemical sciences	$173.4
Engineering and geoscience	41.2
Energy related biosciences	28.2
Captial funding	64.8
Construction	11.5
Materials sciences	334.6
Total	653.6

The three hallmarks of the Basic Energy Sciences program are excellence, relevance, and stewardship. All BES research programs undergo rigorous peer evaluation through competitive grant proposals, program reviews, and advisory panels. This year, BES researchers were honored with dozens of awards, prizes, and fellowships, including the most prestigious award given in science, the Nobel Prize. Strategic directions are set through working relationships with other DOE programs, research workshops with public and private scientific communities nationwide, and policy directives. As a result, BES has 120 cost-shared Cooperative Research and Development Agreements (CRADA's) with industry, which extend the basic research to applications and development. BES also has hundreds of non-CRADA industrial collaborations, many initiated by industry scientists, which do not involve BES support of the industrial partners.

In addition to supporting research performers, BES is also the steward of the major national user facilities for materials sciences, chemical sciences, geosciences, environmental sciences, biological sciences, and medical sciences. BES has overseen the planning, construction, and operation of more than a dozen such facilities, including third generation synchrotron light sources, high flux neutron sources, and specialized facilities for microcharacterization, materials synthesis, combustion research, and ion beam studies. These facilities have an enormous impact on science and technology, ranging from determinations of the structure of superconductors and biological molecules to the development of wear-resistant prostheses, from atomic-scale characterization of environmental samples to elucidation of geological processes, and from the production of unique isotopes for cancer therapy to the development of new medical imaging technologies.

BES user facilities are open to all qualified investigators in academia, industry, and government laboratories, including scientists from about 100 U.S. companies. With the Science User Facilities Initiative, we have substantially increased operating hours and upgraded beamline instrumentation at the synchrotron light sources and the neutron sources.

There were two important milestones at the Advanced Photon Source at Argonne National Laboratory this year. The APS is one of only three third generation, hard x-ray sources worldwide, and it is the only one in the Americas. The first x-rays were observed on the experimental floor on March 26, 1995. Less than one year later, the APS achieved its design specification of 100 milliamperes of electron beam current circulating in the storage ring. The APS will be officially dedicated on May 1st of this year.

Materials Sciences.—This subprogram creates new knowledge of materials structures and properties, that is, the scientific foundation necessary to optimize the behavior and performance of materials for clean and efficient energy technologies, and to develop more efficient techniques for waste minimization and environmental remediation. Indeed, all energy technologies are materials limited. The performance parameters, economics, environmental acceptability and safety of all energy generation, conversion, transmission, and conservation technologies are limited by the behavior of materials. Materials research is crucial to advanced automotive technologies; the safe and reliable transport, containment and storage of hazardous substances; and the minimization of wastes in the synthesis and processing of commercial materials.

Materials research seeks to understand the synergistic relationship among the synthesis, processing, structure, properties, and behavior of a diverse range of materials. In fiscal year 1997, the subprogram will remain a major supporter of basic research in the synthesis, processing and performance of high temperature superconductors, hard and soft magnetic materials, high temperature alloys and polymers, and of surface science. The budget request will continue basic research in such topics as aqueous and galvanic corrosion, neutron induced irradiation damage, welding and joining, high rate and superplastic metal forming, bulk metallic glasses, solar photovoltaics, high temperature structural ceramics and ceramic matrix composites, solid ceramic electrolytes for batteries and fuel cells, and nondestructive evaluation techniques.

Chemical Sciences.—Our chemical sciences research expands knowledge of chemistry and aligned scientific disciplines expected to contribute to new and environmentally responsible energy and industrial processes. Theories and data gotten with this research contribute, directly and indirectly, in such areas as producing fuels and chemicals from coal and biomass, environmental restoration and waste management, electrochemical and photochemical energy production, and the efficient and safe use of energy resources. Contributions come from enabling scientists and engineers to predict the atomic and molecular properties of matter and the chemical interactions of its components.

The fiscal year 1997 budget request provides for basic research on combustion, catalysis, environmental processes, waste management, energy intensive processes and technologies, and advanced vehicular transportation. The fiscal year 1997 request will provide increased research on the molecular level interactions between dissolved materials in aqueous systems and soil type substrate surfaces. Long supported research on the molecular origins of catalysis, which recently led to an improved metallocene based catalyst for polymer production, will continue. In fiscal year 1997, the program will keep seeking a fundamental understanding of combustion and tools to predict the chemistry involved in combustion, which is involved in over 90 percent of our energy processes. The fiscal year 1997 budget request also includes support for continued expansion of the Combustion Research Facility.

Engineering and Geosciences.—Our engineering research improves fundamental understanding of systems and processes that underlie current engineering practices in energy technologies and builds the technical and conceptual base for solving future problems. The fiscal year 1997 request provides for energy and environmental related topics such as bioprocessing of fuels and energy related wastes; design techniques to extend the life of energy related structures; characterizing oil, gas, and water flow through porous materials similar to soil and rocks; and the behavior of liquid-gas mixtures, for instance, oil and natural gas in pipelines. Work will also continue on intelligent machines and intelligent controls contributing to increased industrial productivity and improved handling of hazardous waste. The engineering research program also sponsors a total of 36 3-year predoctoral fellowships in integrated manufacturing.

Our geosciences research uses many techniques, such as underground imaging, computer modeling, and experimental simulation, to investigate the origin and space/time development of geologic constituents and their interactions in the outer few kilometers of the earth's crust. Hypotheses and theories are tested with direct sampling, in situ experiments and observations, and with surface based observations and analyses. The fiscal year 1997 budget provides for sustaining experimental and theoretical studies of the interactions of minerals and fluids, for example, oil, gas, geothermal brines, magma-hydrothermal solutions, and water, within the crust. It provides for increased effort for geophysical imaging and fluid flow in reservoirs to advance understanding in areas of critical importance to the energy and environmental mission of the Department.

Energy Biosciences.—The Energy Biosciences subprogram addresses the increasing number of new opportunities arising at the interface of biology with other basic energy related sciences such as the biosynthesis of novel materials and the influence of soil organisms on geological processes. The fiscal year 1997 request will provide for the continuance of the subprogram's support of research efforts to advance the enormous potential of modern biotechnologies for energy production and conservation. The program emphasizes research in the microbiological and plant sciences as these understudied areas offer numerous scientific opportunities to dramatically influence environmentally sensible energy production and conservation. Areas of interest include plant productivity, conversion of biomass and other organic materials into fuels and chemicals by microbial systems, and biological systems to replace energy intensive or pollutant producing processes.

Lastly, the Basic Energy Sciences Capital Equipment request for fiscal year 1997, which is essential to the continued success of the program, includes such items as electron microscopes, neutron spectrometers, molecular beam equipment, and computers for equipment control and data analysis.

COMPUTATIONAL AND TECHNOLOGY RESEARCH

Fiscal year 1996 Appropriation—$150.5 M; fiscal year 1997 Request—$158.1 M (Figure 3)

The Computational and Technology Research Program (CTR) conducts research in applied mathematical sciences, high performance computing and communications, information infrastructure, advanced energy projects research, and technology research. The subprogram also serves as an advocate within the Department to formulate and coordinate the Department's National Information Infrastructure (NII) initiative, especially to promote economically beneficial energy-related "National Challenges" applications such as energy demand and supply management and to develop the underlying technologies to enable these applications. The Office of Computational and Technology Research manages the SBIR and STTR programs. The program explores advanced energy concepts at an earlier stage of development than departmental energy technology programs. Its technology activities include the cost-shared laboratory Cooperative Research and Development Agreements (CRADA's), technical assistance to small business and the Environmental Technology Partnerships. An effort in Intelligent Energy Processes is an important element in the integrated research program.

FIGURE 3.—*Computational and Technology Research*

	Millions
Laboratory technology research	$21.8
Advanced energy projects	11.5
Related Capital funding	6.6
Mathematical, information, and computational sciences	118.3
Total	158.1

The program, which consists of the following three major subprograms, works closely with other Energy research and departmental programs.

Mathematical, Information, and Computational Sciences.—This subprogram supports a spectrum of activities ranging from fundamental, long-range mathematical and computational research that underpins all of the Department's programs to the management and operation of a leading edge information infrastructure. This subprogram contributes to the multi-agency High Performance Computing and Communications (HPCC) program, and advances all aspects of scientific computation. This program of basic research to technology development includes activities such as High Performance Computing and Communications, the National Information Infrastructure, the Computational Technology program, and the joint Energy Research-Defense Programs DOE 2000 initiative. The driving requirement for the HPCC program is to advance the fundamental concepts and techniques which underpin all energy sciences and development. The HPCC program will substantially expand and accelerate development of a new generation of computing and communications technologies, facilities, applications, and trained personnel.

The net increase in funding from fiscal year 1997 is due to enhanced efforts in National Collaboratories and Advanced Computational Testing and Simulation (ACTS) in support of the DOE 2000 initiative. This is a joint Energy Research—Defense Programs effort to develop and test a common technology base that supports both National Collaboratories and ACTS. Efforts are underway to extend the DOE 2000 initiative to other DOE programs and other agencies as it matures.

National Collaboratories Research.—Seeks to develop a set of tools and capabilities that will permit scientists and engineers working at different DOE and other facilities to collaborate on solving problems as easily as if they were in the same building. The program thrust in ACTS and Simulation will produce an integrated set of algorithms, software tools and infrastructure that will enable computer simulation to better complement experiment and theory or to be used in place of experiments when real experiments are too dangerous, expensive, or inaccessible. The efforts in these areas are closely coordinated with related activities supported by Defense Programs.

The request provides funds to support the National Energy Research Supercomputing Center, that will provide research time for about 5,000 scientists in universities, Federal agencies, and U.S. Companies, or the same level as fiscal year 1996. The benefits will flow to researchers from the structural biology, materials sciences, superconductor technology, medical research and technology development, plasma sciences, and environmental and atmospheric research communities. In 1997, the program will start development of applications development in compressible fluid dynamics/combustion, environmental chemistry, and materials sciences. The subprogram will integrate the most critical existing software tools into ACTS framework as part of the DOE 2000 initiative. The request also provides for upgrading ESnet bandwidth services to support high speed Program Integration and ACTS applications as part of the DOE 2000 initiative.

Laboratory Technology Research.—The Laboratory Technology Research subprogram links the basic science at ER national laboratories to applied technologies through leveraged collaborations with industries. The program is focused in critical technology research areas, e.g., intelligent manufacturing processes, tailored materials, and sustainable environments, to contribute technological innovations that will stimulate national economic growth, and to increase the return on the government investment in basic science. Research is conducted through peer-reviewed collaborations, including cost-shared Cooperative Research and Development Agreements (CRADA's), personnel exchanges, technology research and maturation projects, technical assistance/consultations to small business, and major government-industry partnerships with multiple partners. Performance measures related to laboratory technology research focus on reduction of technical risk. The quality of research is evaluated through peer review, workshops, and site visits.

The fiscal year 1997 request provides, for example, research on intelligent processes such as sensor-computer-machine control systems that will focus on high risk technological problems for ultimate commercial applications with high payoff. The potential for large payoff is based on the explosive growth in inexpensive computer technologies and the ability to incorporate them into control systems. In fiscal year 1997, this activity will continue support for 90 ongoing multi-year collaboration projects in technology research focus areas at 5 ER multi-program laboratories. Includes increased support for intelligent energy processes and computational technology. While support of Computational Technology projects and technical assistance activities will increase, the subprogram will eliminate support or the AMTEX Partnership.

Advanced Energy Projects.—This activity funds research to establish the feasibility of novel, energy-related concepts that span the Department's energy mission and goals. These concepts are usually derived from recent advances in basic research, but require additional research to establish their feasibility. A common theme for each concept is the initial linkage of new, or previously neglected, research results to a practical energy payoff for the Nation. Efforts are typically supported at a level of $300,000 per year for a period of 3 years. Although the funding profile can vary widely among projects in the Advanced Energy Projects (AEP) research portfolio, the 3-year budget period is considered a maximum. A measure of success is demonstrated if the project attains further funding from another source to realize its full potential. Projects are selected from proposals submitted by universities, industrial organizations, non-profit research institutions, and national laboratories. Equal consideration is given to each submission. Funding criteria include scientific merit as judged by peer review.

The fiscal year 1997 request will maintain the subprogram's present level of research effort in the Department's mission areas by supporting strategic research such as a novel, and potentially highly-efficient approach for converting methane into heat and a new magnetic material that can be fabricated with small feature sizes for use as micromotors. Other research will explore a solar-powered technique for converting carbon dioxide to methanol and for synthesizing and characterizing new materials for energy-efficient, optical imaging.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Fiscal year 1996 Appropriation—$406.4 M; fiscal year 1997 Request—$379.1 M (Figure 4).

The Biological and Environmental Research Program (BER) provides fundamental science to underpin the five business thrusts of the Department's strategic plan. Through its support of peer reviewed research at national laboratories, universities, and private institutions, the program develops the knowledge needed to identify, understand, and anticipate the long-term health and environmental consequences of energy production, development, and use. The goal of the BER program is to develop the information, scientific "know-how," and fundamental science that underpins new technologies used in the pursuit of detailed understanding of the consequences to health and the environment of energy production, development and use.

FIGURE 4.—*Biological and Environmental Research*

	Millions
Environmental Processes	$102.3
Environmental restoration	29.1
Medical applications	42.6
Related Capital funding	30.0
Construction	36.1

FIGURE 4.—*Biological and Environmental Research—Continued*

	Millions
Life sciences	138.9
Total	379.1

A new structure has been developed for the Biological and Environmental Research program. The previous structure no longer reflected the program priorities or the ongoing integration across scientific disciplines. Our new structure contains the following subprograms: Life Sciences, Environmental Processes, Environmental Remediation, and Medical Applications and Measurement Science.

Life Sciences.—I have already noted the human genome research in this subprogram. In addition, the fiscal year 1997 request provides for structural biology research to develop and support DOE national user facilities for scientists to learn the molecular structure of important biological molecules, such as enzymes, antibodies, or other proteins. These facilities are critical tools in applications ranging from energy production to environmental remediation. They also provide a means for better understanding the mechanism of action of current drugs and for the design of new drugs to control or treat a variety of diseases.

A major emphasis for fiscal year 1997 is the initiation of a station for structural biology studies at the Los Alamos Neutron Scattering Center at Los Alamos National Laboratory. In addition, a new program in computational structural biology is being initiated to support research to enhance understanding of structure-function relationships in biological macromolecules.

The fiscal year 1997 request provides for research on scientific information and advanced technologies to understand and mitigate the potential health effects from energy activities and cleanup operations. It also provides for research furthering basic scientific understanding of fundamental life processes and biomolecules. In fiscal year 1997, the program will focus on research in support of estimating health risk, understanding molecular structure/function relationships and on applications of biotechnology. Structure/function research integrates information and technologies from genome, structural biology, and cellular/molecular biology research with human health research.

Health risk research for understanding and characterizing the risks to human health from exposures to low levels of radiation and chemicals both at home and at work will receive emphasis in fiscal year 1997. New models for mitigating adverse human health effects by understanding the complex relationships between genes, the proteins they encode, and the biological functions of these proteins also will be emphasized during fiscal year 1997.

Again in fiscal year 1997 biotechnology research will emphasize the application of technologies and resources, especially those developed as part of the human genome program. The budget request provides for a major emphasis on the Microbial Genome to characterize the genomes and proteins of microorganisms with important applications in industry, energy production, and environmental cleanup.

Environmental Processes.—The Environmental Process program conducts research on a range of environmental issues, particularly those focused on the consequences of emission of aerosols and trace gases, especially carbon dioxide, from fossil fuel combustion.

The DOE has an integrated observational and modeling program with the goal of predicting climate variability and climate change ten to one hundred years in advance. The CHAMMP program is extending its modeling breakthrough in ocean simulation to develop a coupled atmosphere-ocean model useful for climate prediction. Under the Atmospheric Radiation Measurement (ARM) Program, DOE is investigating the effect of clouds and water vapor on the earth's energy balance. This problem has been cited as the most important barrier to improving the predictions of global change models.

The first instruments for the ARM Tropical Western Pacific Site are being shipped to Manus, Papua-New Guinea. In fiscal year 1997 a second set will be installed on Nauru. The Southern Great Plains Site in Oklahoma and Kansas has been in operation for three years providing critical data to the science community. Mutually supporting efforts in ultraviolet-B radiation, aerosols and mid-latitude stratospheric ozone are ongoing in the Atmospheric Chemistry Program.

In addition to these efforts, DOE supports research on the fundamental mechanisms of the response of terrestrial ecosystems to environmental change to enable prediction of the potential impact of global climate change. The DOE Carbon Research program focuses on the carbon cycle and the impact of energy usage on it. The research provides a scientific basis for assessing the effects of human activities on the earth's climate and for assessing the need for action to mitigate any adverse change. Beyond their mutual scientific support, these programs are coordinated with other agencies through the NSTC's Committee on Environment and Natural Resources.

Environmental Remediation.—The research is focused on the understanding of the fundamental physical, chemical, geological, and biological processes that must be marshaled for the development and advancement of new, effective, and efficient processes for the remediation and restoration of the Nation's nuclear weapons production sites. Priorities of this research include bioremediation (which was noted earlier), the development of the full capabilities of the Environmental Molecular Sciences Laboratory, and the joint scientific endeavors with the Office of Environmental Management. The subprogram also includes basic research in support of pollution prevention and sustainable technology development.

The fiscal year 1997 requests provides for increased research to improve understanding of the potential of microorganisms for environmental bioremediation. With the establishment of the Environmental Molecular Sciences Laboratory, unified efforts will provide research directions that capitalize on the interdisciplinary nature of the fundamental molecular sciences supporting environmental cleanup. In fiscal year 1997, we anticipate critical contributions to synergistic research directions from additional research on the microbial genome, as discussed above.

Medical Applications and Measurement Science.—The medical applications program supports research to develop beneficial applications of nuclear and other energy-related technologies for medical diagnosis and treatment. Program researchers develop applications of radiotracer agents for medical research using recent advances in instrumentation as well as in molecular and structural biology. The research in this activity is conducted in six specific areas: Radioisotope Development, Radiopharmaceuticals, Instrumentation, Clinical Feasibility, Boron Neutron Capture Therapy (BNCT), and Molecular Nuclear Medicine. In fiscal year 1997 the research will continue emphasis on non-invasive diagnostic tools, including imaging technologies such as positron emission tomography.

Our measurement science program focuses on research and development of new measurement technologies to meet the needs of our environmental and life sciences programs and other departmental customers. The fiscal year 1997 request provides for a variety of activities, with particular emphasis on using the advanced technologies developed in the Department's National Laboratories for environmental and biomedical research. The fiscal year 1997 request also provides for dosimetry research devoted to providing fundamental understanding of interactions of radiation with matter needed to improve boron neutron capture therapy (BNCT) and other programs in medical applications and the life sciences.

FUSION ENERGY SCIENCES

Fiscal year 1996 Appropriation—$227.4 M; fiscal year 1997 Request—$255.6 M (Figure 5).

The Fusion Energy Sciences Program's new mission is to advance plasma science and fusion science and technology—the knowledge needed for an economically and environmentally attractive fusion energy source. The new program goals are to: Advance plasma science; Develop fusion science, technology and plasma confinement innovations; Pursue fusion energy science and technology as a partner in the international effort.

The research program is changing significantly in response to the new mission and goals.

Managing the transition of this program to a world-class fusion energy sciences program will be one of the Department's highest priorities in the coming year. While the broad outlines of the program are clear, many important decisions remain. The Department is seeking the best scientific advice available in making these decisions, and it will rely heavily on the outcome of reviews now being conducted by the Fusion Energy Sciences Advisory Committee, to build community consensus around these decisions.

FIGURE 5.—*Fusion Energy Sciences*

	Millions
Fusion technologies	$83.9
Related Capital funding	11.3
Fusion and plasma science	160.3
Total	255.6

The Department's new fusion energy sciences program for fiscal year 1997 will include:

A Plasma Science Initiative.—We will significantly increase funding for basic plasma science, beginning in fiscal year 1997. This initiative will broaden the academic base in the field through outreach to institutions not now involved in plasma science and will include a Plasma Science Young Investigator Award program. Over the next five years, fusion program funding for basic plasma science is projected to grow to approximately $10 million. This initiative will be coordinated with other agencies funding plasma science, such as the National Aeronautics and Space Administration and the National Science Foundation.

A Significantly Increased Emphasis On Alternative Concepts.—We will evaluate proposals to identify one or two small alternative concept experiments for construction. One that has already been favorably reviewed is the National Spherical Tokamak Experiment proposed by Oak Ridge National Laboratory, Princeton Plasma Physics Laboratory, and the University of Washington to be built at Princeton Plasma Physics Laboratory. We will also continue our program of cooperation on large alternative experiments in Japan and Europe. We are asking the Fusion Energy Advisory Committee to recommend an overall strategy for conducting an alternative concepts research program in the United States, by this summer.

An Increase In Our Fusion Science Knowledge Base.—We will use existing major facilities to develop innovative improvements for the Tokamak, construction of a limited number of innovative small experiments funded within an essentially flat budget, and an increased program of research in basic plasma science. Again, Fusion Energy Advisory Committee will recommend priorities among the research efforts that can be addressed using our facilities.

A Shut Down Of TFTR In Either 1997 Or 1998.—The TFTR, as the only tokamak now operating with deuterium-tritium fuel, offers the promise of unique advances in fusion physics. By early 1997 we will have evaluated TFTR's work-in-progress with the assistance of the Fusion Energy Advisory Committee and will either begin facility shutdown in fiscal year 1997, or will complete a focused experimental program leading to termination in fiscal year 1998. After TFTR shutdown, the Laboratory will continue to be a center of excellence in fusion and plasma science, with strong capabilities in theory and modeling, in diagnostics and instrumentation, and in experimental fusion science, although at a smaller scale and with an even greater emphasis on innovation than in the past.

A Leveraging Of Program Resources Through International Collaboration.—We will continue to leverage our resources through international collaboration, which is an integral part of every facet of the fusion program. We will also remain an active participant in the International Thermonuclear Experimental Reactor (ITER) Engineering Design Activities (EDA), through completion in July 1998. The ITER is the only facility presently planned that will permit the study of the physics of long-pulse ignited plasmas, a key area of fusion science. Failure to fulfill our commitment to our international partners would damage our credibility as an international partner and specifically limit our access to facilities constructed by the much larger Japanese and European fusion programs. The Department is beginning a dialogue with other agencies and the Congress on whether or not to enter into informal, noncommittal discussions with the ITER partners on future U.S. participation in ITER construction and experimentation at some modest level.

A Changed But Continuing Role For The Princeton Plasma Physics Laboratory.—Even though we will shut down TFTR after exploiting its scientific capabilities, we will maintain the technical infrastructure developed through decades of investment at the Laboratory to provide the core competencies required for national leadership and international collaboration in fusion research.

Changed Program Governance.—The Office of Fusion Energy Sciences will be reduced in size and reorganized. The Fusion Energy Advisory Committee will be renamed the Fusion Energy Sciences Advisory Committee, and its membership changed to reflect the scientific nature of the program. The Fusion Energy Sciences Advisory Committee will have a continuing Science Subcommittee that will play a role in providing scientific information to the Fusion Energy Sciences Advisory Committee to aid in priority setting, and will serve as the focus of scientific leadership and consensus building within the fusion community. Peer review will be used for the evaluation of research proposals, assessment of progress and quality of work, and for initiating or terminating facilities, projects, and research programs or groups.

UNIVERSITY AND SCIENCE EDUCATION PROGRAM

Fiscal year 1996 Appropriation—$18.9 M; fiscal year 1997 Request—$19.9 M (Figure 6).

The University and Science Education (USE) Program ensures that the Department effectively utilizes and leverages the resources of the laboratory system to support DOE's university and science education mission. USE provides centralized institutional support for DOE's education efforts which provide summer and semester hands-on research experiences for students and faculty at the laboratories, supports the Departmental role in the national effort to improve science education for all students, increasing the diversity of the workforce and minimizing department-wide administrative cost.

FIGURE 6.—*University and Science Education*

	Millions
University programs	$6.0
Laboratory cooperative science centers	13.9
Total	19.9

In fiscal year 1997, USE plans to support: (1) undergraduate and graduate participants in the Laboratory Cooperative Education program; (2) coordination with other DOE programs and improved integration of science education activities; (3) high priority Administration and Congressional science education and diversity programs; (4) a developmental award program for faculty and students from primarily undergraduate institutions and minority institutions that stimulates collaboration with DOE scientists and enhances faculty grant competitiveness; and (5) partnering with National Science Foundation in support of its Minority Institutes of Excellence program to enhance coordination and effectiveness of support for undergraduate programs at HBCU's and coordination with other federal, state, and local agencies.

The fiscal year 1997 request will enable DOE to provide a healthy base program focused on longer term research assignments of undergraduates, graduate students, faculty and post doctoral research appointments at DOE laboratories; and a level of science education institutional support that allows DOE to optimize student and faculty internships and collaborative involvement in DOE research. This approach is consistent with Congressional guidance, supports the Administration's science education goals, and will result in increased efficiency in carrying out the restructured science education program in close collaboration with DOE programs and other agencies, such as the National Science Foundation.

MULTIPROGRAM ENERGY LABORATORIES—FACILITIES SUPPORT

Fiscal year 1996 Appropriation—$34.1 M; fiscal year 1997 Request—$28.9 M (Figure 7).

The Multiprogram Energy Laboratories-Facilities Support (MEL–FS) program addresses the general purpose infrastructure needs at the five multiprogram ER laboratories. The five multiprogram energy laboratories are: Argonne National Laboratory-East, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory. These laboratories have an average age of 30 years and have an estimated replacement value of over $10 billion.

Fulfillment of the science and technology goals and objectives identified in the Department's Strategic Plan depends heavily on the existence and operating efficiency of these multiprogram laboratories. However, much of the infrastructure of these laboratories is old, deteriorating, and obsolete and needs improvement to comply fully with the environment, safety and health requirements in effect today and to meet operational needs.

The MEL–FS program is designed to preserve the government's investment in infrastructure and to maintain infrastructure integrity in a reasonable and economic manner at these laboratories. To achieve this, the program is divided into three activities: Construction, Related Capital Funding, and Infrastructure Support. These activities help to ensure that the infrastructure of the laboratories is adequate to support the Department's missions now and into the future. The fiscal year 1997 budget request for MEL–FS is $28.9 million.

FIGURE 7.—*Multiprogram Energy Laboraties-Facilities Support*

	Millions
Related Capital funding	$0.2
Infrastructure support	7.4
Construction	21.3
Total	28.9

The Construction activity supports refurbishment and replacement of inadequate general purpose facilities and infrastructure. It also supports construction activities associated with necessary site-wide Environment, Safety & Health (ES&H) actions. This includes construction on general purpose buildings, utility systems, roads and other structures. The fiscal year 1997 request for Construction is $21.260 million. This funding allows continuation of nine ongoing line-item projects and no new construction starts in fiscal year 1997.

The Infrastructure Support activity supports ES&H activities necessary to attain compliance with applicable federal, state, local and Departmental ES&H Requirements as identified and prioritized in the DOE ES&H Management Plan. It also includes $0.5 million for Inactive and Surplus Facilities activities and $0.5 million for Improved Planning Systems. These activities provide for cleanup, removal, or preparation for transfer of facilities to DOE's Office of Environmental Management for decontamination and decommissioning and improve facilities and project planning processes, respectively. The total fiscal year 1997 Infrastructure Support request is $7.4 million.

ENERGY RESEARCH ANALYSIS

Fiscal year 1996 Appropriation—$3.4 M; fiscal year 1997 Request—$2.0 M.

The mission of the Energy Research Analyses program is to conduct technical assessments of the Department's civilian research and development programs and to provide direction to future research and development activities. During the past year, senior research managers within the Department, seeking to enhance the quality of their programs, have requested comprehensive project-by-project evaluations of research programs in solar photochemistry and fossil energy advanced research. Highly specific findings from these reviews provided managers with the authoritative information they needed to modify and improve their programs. Energy Research Analyses also conducted science policy analyses, and developed basic science strategic plans.

The fiscal year 1996 budget request will provide funding for peer reviews of approximately 200 projects in Energy Research, Fossil Energy, and Energy Efficiency to continue to improve the quality and relevance of DOE research and development. In fiscal year 1997, this activity will update and improve the Energy Research Strategic Plan to establish a new vision and mission, and to get maximum research value from the realigned Office of Energy Research. Other activities will include evaluation of critical planning and policy issues of DOE science and technology using expert groups at the National Academy of Sciences, the JASON group, etc., as appropriate.

ENERGY RESEARCH—ENERGY SUPPLY PROGRAM DIRECTION

Fiscal year 1996 Appropriation—$43.7 M; fiscal year 1997 Request—$42.2 M.

This new program has been established in response to direction from the Congress that within each appropriation, each organization should have only one program direction decision unit for Federal staffing resources and related costs. Program Direction provides the Federal staffing resources and associated costs required to provide overall direction and execution of Office of Energy Research program and advisory responsibilities. Energy Research-Energy Supply Program Direction supports staff in the Basic Energy Sciences, Fusion Energy Sciences, Biological and Environmental Research, Computational and Technology Research, University and Science Education, Multiprogram Energy Laboratories-Facilities Support and Energy Research Analysis programs, including management and technical support staff.

This program also supports staff at the Chicago and Oakland Operations Offices directly involved in program execution, and ER resources at the Environmental Measurements Laboratory. Staff includes scientific and technical personnel and program management support in the areas of budget and finance, general administration, grants and contracts, information resource management, policy review and coordination, infrastructure management and construction management. In addition, beginning in fiscal year 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration.

GENERAL SCIENCE AND RESEARCH

HIGH ENERGY PHYSICS

Fiscal year 1996 Appropriation—$667.0 M; fiscal year 1997 Request—$679.1 M (Figure 8).

The Department of Energy provides over 90 percent of the Federal support for the Nation's high energy physics (also called elementary particle physics) research. High energy physics research seeks to understand the nature of matter and energy at the most fundamental level, as well as the basic forces which govern all processes in nature. It requires accelerators and detectors utilizing state-of-the-art technologies in many areas, including fast electronics, high speed computing, superconducting magnets, and high power radio-frequency devices.

FIGURE 8.—*High Energy Physics*

	Millions
Facility operations	$271.2
High energy technology	74.9
Related Capital funding	91.7
Construction	100.0
Physics research	141.3
Total	679.1

In these areas, high energy physics research has led to many developments with practical applications in the civilian marketplace. High energy physics technology research continues to make major contributions to accelerator technology and develops technical expertise which supports widespread accelerator utilization in other scientific disciplines and industrial processes such as synchrotron light sources and medical diagnostics and treatment.

This program provides the basis for an excellent education for the brightest young scientific minds, so necessary for the program to continue research at the intellectual frontier. Experimental and theoretical researchers from more than 100 universities conduct about three-fourths of the research, with the remainder being done by staff at the national laboratories. This combination of highly skilled scientists and engineers from the universities and our national laboratories contribute significantly to the transfer of technology to other fields.

Progress in high energy physics research depends on forefront experimental capabilities, effective use of specialized facilities, and the availability of new and upgraded facilities designed to take advantage of new technologies and research opportunities. The Department of Energy supports three major high energy physics accelerator centers. Each provides unique capabilities and is operated as a national facility available to qualified experimenters around the Nation and abroad on the basis of the scientific merit of their research proposals. Approximately 2,000 U.S. scientists and 200–300 foreign scientists work at these facilities at any given time.

At the Fermi National Accelerator Laboratory (Fermilab), Tevatron, the world's highest energy superconducting accelerator provides both fixed target and colliding beam research programs. The colliding beam research program benefits from having two major detector facilities, the Collider Detector at Fermilab (CDF) and the D-Zero Detector, which complement each other in their differing technical capabilities. In March 1995 the CDF and D-Zero collaborations jointly announced the discovery of the long-sought Top Quark, the last of the six predicted by the Standard Model. In fiscal year 1997 the Tevatron is expected to operate for 29 weeks, continuing the fixed target run begun in fiscal year 1996.

Construction of the Fermilab Main Injector project, to be completed in fiscal year 1999, continues on schedule and within budget. By providing a fivefold increase in collider luminosity, and a doubling of intensity for the fixed target program, this project will greatly enhance the physics capabilities of the Tevatron accelerator and its detector facilities by the end of the decade, and greatly increase the likelihood of major new scientific developments early in the next century. The Main Injector will also allow simultaneous operation of the fixed target and colliding beam research programs, currently not possible.

At the Stanford Linear Accelerator Center (SLAC), the Stanford Linear Collider (SLC) is the world's only operating high energy linear collider. The SLC continues to collect data using its beam of polarized electrons, a capability unique to the SLC which gives physicists an added degree of control over the experimental conditions.

In these experiments, a high energy beam of polarized electrons collides with an unpolarized beam of positrons (the electron's antimatter counterpart) to produce what are referred to as Z particles, the heaviest known elementary particle. More than 100,000 Z particles were observed and recorded by the SLAC Large Detector (SLD) in fiscal year 1995. After analyzing these data, university and laboratory collaborators at SLAC announced the world's most precise measurement of the weak mixing angle, a crucial parameter of the Standard Model of physics. In fiscal year

1997, the SLC is expected to operate for about 26 weeks and, in addition, there will be about 10 weeks of fixed target operation.

Construction at SLAC of the B-factory project, to be completed in 1998, is progressing on schedule and within budget. The B-factory will provide a high luminosity, asymmetric electron-positron colliding beam facility to study the reasons for the preponderance of matter over anti-matter in our universe, a fundamental concept necessary for our very existence. This project will also provide opportunities to pursue a rich program of experiments in a large number of other areas of intense interest in high energy physics. The project is being designed and built by SLAC in collaboration with Lawrence Berkeley and Lawrence Livermore National Laboratories. An international collaboration, about half of which is from the U.S. and half from abroad, is building the BaBar detector, the principal experiment at the B-factory.

The Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory (BNL) delivered protons to 5 running experiments and 15 different test beam groups during its run last year. In addition, its injector linac continues to provide beams for testing materials for the production of radiopharmaceutical isotopes. The AGS recently attained a new world record intensity for synchrotrons, delivering 5.0×10^{13} protons per pulse every 3.7 seconds. It is expected that further increases in intensity will be achieved in the near future. These intense beams, although at energies much lower than at Fermilab or SLAC, were used to carry out a program of high precision measurements of very rare decays of particles called kaons, thus providing a critical test of the Standard Model. In fiscal year 1997, the AGS is expected to operate about 15 weeks.

The European Laboratory for Particle Physics (CERN) in Geneva, Switzerland, is beginning construction of a proton collider, called the Large Hadron Collider (LHC). The LHC will be about one-third the energy of that which had been planned for the U.S. Superconducting Super Collider (SSC), but about 7 times the energy of the Fermilab Tevatron. Participation in the LHC is extremely important to the goals of the U.S. High Energy Physics program. Over 500 U.S. physicists are strongly interested in participating in the two major LHC detector collaborations and in magnet/accelerator research and development collaborations. U.S. participation would allow CERN to finish the project at full operating capability in the year 2005 instead of 2008. The fiscal year 1997 budget requests $15 million in support of U.S. scientists' participation in the LHC project.

The extraordinary benefits to the U.S. would include continued access by U.S. physicists to the energy frontier at what will then be the highest energy accelerator in the world. It would ensure continued world class excellence of our university and national laboratory scientists and would provide training to many students in leading edge science and technology. In addition, most of the money the U.S. would spend on detector and accelerator components would be spent in the U.S., with much of it going to industry to build the components. This would improve the capabilities and expertise of U.S. scientists and industries and would ensure their access to the high-level technology being developed. The LHC would be a significant next step toward internationalization of large scientific construction projects, pending successful completion of negotiations with CERN.

Formal negotiation between the U.S. and CERN was inaugurated on January 10, 1996, and is ongoing. An agreement is expected by the end of 1996. This negotiation is guided by an Interagency Working Group consisting of representatives from the Department of Energy, Department of State, Office of Science and Technology Policy, Office of Management and Budget, and the National Science Foundation. In the future, all countries will have to work together to build these necessary but expensive research facilities.

NUCLEAR PHYSICS

Fiscal year 1996 Appropriation—$304.5 M; fiscal year 1997 Request—$318.5 M (Figure 9).

The primary goal of nuclear physics research is to understand the structure and properties of atomic nuclei and the fundamental forces between the constituents that form the nucleus. Nuclear processes determine essential physical characteristics of our universe and the composition of the matter that forms it.

FIGURE 9.—*Nuclear Physics*

	Millions
Construction	$65.0
Related Capital	35.7
Nuclear theory	15.4
Low energy nuclear physics	27.8

FIGURE 9.—*Nuclear Physics—Continued*

	Millions
Heavy ion nuclear physics	70.2
Medium energy nuclear physics	104.5
Total	318.5

Beyond helping to maintain world leadership in basic research, the Nuclear Physics program develops and transfers knowledge to enhance the Nation's technological and economic competitiveness in such fields as nuclear medicine. The Nuclear Physics program continues to be a vital source of trained people for fundamental research and for these applied technology areas. The program supports the graduate training of approximately 450 students per year, and typically 100 Doctorates in nuclear physics are awarded each year at DOE-supported nuclear physics programs. A majority of these highly trained researchers will take positions in high-technology private industry.

Many future nuclear physics investigations will study questions related to the quark presence in composite nuclei. Until the last few years, the fundamental understanding of nuclear properties has been based on the idea of a nucleus composed of protons and neutrons that interact through a combination of weak, strong, and electromagnetic forces. It became clear that achieving a real knowledge of many nuclear properties depends on understanding nuclear structure based on quarks, and particles called gluons that bind the quarks together. Quarks and gluons are the building blocks of protons and neutrons (nucleons). A new Long Range Plan for the U.S. Nuclear Physics Program, prepared by the nuclear physics community, has been prepared to ensure that we can address the role of quarks in nuclear matter and other most pressing scientific questions.

Studies of nuclear structure require ultra-high resolution "microscopes," accelerators that produce particle beams of very high energy and resolution. The Operating Expenses request is designed to provide the maximum operating hours for these facilities, optimized by funding from the Science User Facilities Initiative, so that researchers may take full advantage of their unique capabilities.

Research at the Continuous Electron Beam Accelerator Facility (CEBAF) will study effects due to the presence of quarks in nucleons in the nucleus. Two principal focuses of these studies will be to continue to develop an understanding of how the "spin" of a nucleus originates in the quarks, and how the size of a quark cluster in a nucleus affects the strength of the interaction of that cluster with other nucleons in the nucleus. However, no one has ever observed a single free quark; they always travel in closely knit groups of threes within nucleons. In fiscal year 1997, CEBAF will operate for 4,500 hours to allow the start up of several high priority experiments to study the quark presence in nuclei.

In addition, the Bates Linear Electron Accelerator at the Massachusetts Institute of Technology will operate for 2,500 hours to take advantage of the new South Hall Ring facility.

A quark-gluon plasma will be produced with a second major facility for the study of new "quark-based" nuclear physics, the Relativistic Heavy Ion Collider (RHIC) at the Brookhaven National Laboratory. RHIC is now under construction and will be completed in fiscal year 1999. It is predicted that if a collection of nucleons could be compressed and heated to a very high temperature by collisions of high energy heavy nuclei, there would be a phase transition to a new state of nuclear matter in which the quarks are "freed" from their nucleon boundaries to form a so-called quark-gluon plasma.

RHIC will be a unique, world-class facility with colliding beams that provide collision energies of 100 billion electron volts (GeV) per nucleon for heavy ions as massive as gold nuclei. The facility will provide the opportunity to form a quark-gluon plasma, creating conditions in the laboratory that are similar to those of the expanding universe microseconds after the Big Bang.

Some of the most critical nuclear reactions in stellar burning processes involve nuclei which, because of their short lifetimes, have not been available for laboratory studies. Another new generation facility, the Radioactive Ion Beam (RIB) Facility at Oak Ridge National Laboratory will produce some of the previously unavailable nuclei so that these important stellar processes can be studied in the laboratory. Beams for experiments will be available in fiscal year 1997 and it will be possible for the first time to study many processes which are crucial to our understanding of how nuclei were synthesized in the Big Bang. The RIB will be operated for 2,400 hours for studies of nuclear measurements of astrophysical significance and for studies of very proton rich nuclei far from stability.

The solar neutrino problem remains one of the great challenges in astrophysics. The predicted rate of neutrino production by the sun is significantly higher than the observed rate. There are two possible explanations for the discrepancy. Either our understanding of solar burning is very wrong, or the neutrino has a small mass, in contradiction to the long-held belief that it is massless. The third major new facility which will be operational in fiscal year 1997 is the Sudbury Neutrino Observatory (SNO) in Canada. Slated to begin data collection in fiscal year 1997, SNO, is designed to sort out this longstanding problem. The project involves an international collaboration among the U.S., United Kingdom, and Canada.

GENERAL SCIENCE PROGRAM DIRECTION

Fiscal year 1996 Appropriation—$10.7 M; fiscal year 1997 Request—$11.6 M.

This program provides the Federal staffing resources and associated funding to plan, direct, and manage a viable, high quality national program of basic research in the fields of high energy physics and nuclear physics to ensure U.S. competitiveness in basic research. It supports the staff in the Office of the Associate Director for High Energy and Nuclear Physics, the High Energy Physics Division, the Nuclear Physics Division, and associated program and management support staff both in the Headquarters and at Chicago, Oakland, and Oak Ridge Operations Offices. Beginning in fiscal year 1997, program organizations are contributing to a Working Capital Fund to cover the costs of centrally provided goods and services such as supplies, housing, utilities, etc., which previously were budgeted in Departmental Administration. Appropriate amounts have been included in budget documents to reflect this change.

This concludes my statement. I would be happy to answer your questions.

LARGE HADRON COLLIDER

Senator DOMENICI. I yield to you, Senator Johnston.

Senator JOHNSTON. Thank you very much, Mr. Chairman.

Dr. Krebs, I am interested in CERN and the LHC. As you know, I was the chief cheerleader for the SSC and Congress saw fit, over my strenuous objection, to discontinue that. You know the SSC had three times the power and better our magnet capability and our scientists were saying at that time that CERN didn't have the power and the luminosity to find the secrets that they wanted to find, the Higgs Boson, et cetera.

Why, if we discontinued our own project, why would we be investing a lot in CERN and the LHC when our scientists, at least at that time, were saying that it probably was not going to work?

Dr. KREBS. Well, I wonder. Clearly, it is not that it will not work at something.

Senator JOHNSTON. But it will not get the Higgs Boson.

Dr. KREBS. There are three things that I want to say. First, if you talk to some of the people out at Fermilab, the character of what they are learning about the top quark seems to indicate, if I have it right, that there may be some Higgs Bosons, there may be some capability to even begin investigating in the Higgs Boson at Fermi, or parts of the Higgs Boson, because one of the things I have learned is there may be as many as five of them. And so, I suspect very strongly that there will be some very interesting physics that can be explored at CERN.

But more significantly, I think we have to keep—if we are going to be investing in high-energy physics, and I think there are lots of reasons to do that, then one of the things we need to do is pursue the energy frontier, wherever it will be. The other issue is that the LHC is going to be in the neighborhood of $4 billion. We can participate for an investment of about $450 million, which we think we can handle if we have a constant budget over the next 10 years, and that is in constant dollars. We think it is a good buy for the Department and the country.

Senator JOHNSTON. Let me just say I am highly skeptical, highly skeptical about spending $450 million on a foreign machine at a time when we discontinued the SSC. We were only about $2 billion away, by my calculation, from finishing the SSC when you considered what the termination costs were and all the investment was and now we are going to spend $450 million at CERN on a machine that—will it work? Sure you can get collisions there, and all that. But with the Fermi main injector, we may get, as you say, the Higgs Boson.

Dr. KREBS. One part of it.

Senator JOHNSTON. But, at least, to record my high skepticism, because we are trying to find enough money to maintain Domenici's labs. [Laughter.]

Senator DOMENICI. Listen, when I first came, you wanted to take my seat and you wanted to take that science book from me and now you want to talk about my labs.

Senator JOHNSTON. I am trying to take care of your labs.

Senator DOMENICI. They are not my labs.

Senator JOHNSTON. That is not what you used to tell me. [Laughter.]

Senator DOMENICI. They belong to the people of the United States. You know that.

Dr. KREBS. And I love them all.

INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR [ITER]

Senator JOHNSTON. Let me speak about ITER for awhile. First of all, you will be able to keep Doublet III and TFTR going all right with the present budget, will you not?

Dr. KREBS. In 1997, yes.

Senator JOHNSTON. By the way, is ITER being redesigned as a smaller machine.

Dr. KREBS. No; that was the recommendation of PCAST. The ITER Management Council all together, the four partners in ITER, disagreed on that and are continuing with the current design for the original idea.

Senator JOHNSTON. How much are we putting into that?

Dr. KREBS. We are putting $55 million in in 1996, I believe but we are scheduled to put in about the same amount in 1997.

Senator JOHNSTON. Well, I continue to believe we ought to make up our minds on ITER.

Mr. Chairman, you know, ITER will be something like, the last I checked, we were talking about $10 billion to build and about $10 billion to operate over a period of 20 years. I mean that is $20 billion now. It is an international endeavor. Our foreign partners have never indicated any more than we will that they are going to commit themselves to it.

We do not have a serious negotiation going about how you are going to split the cost and who is going to do what and whether you are really going to commit to it. But we are spending serious money. Fifty-five million dollars is a lot of money out of this budget and I think we need to make up our minds and say, yes, we are going to do it. In any event, we need to have a very high level negotiation where other nations commit themselves to it and determine whether we want to do it.

Look, if we build it in this country, my guess is we would have to spend 60 to 70 percent of the $20 billion. Or if we build it, say, in Japan, we would have to spend—this is a guess—25 or 30 percent. You know, 30 percent, by the way, of $20 billion is $6 billion to build a machine there. It is kind of like the CERN issue.

Now, we need to decide what are we going to do. Instead, we just kind of keep muddling along and, at some point, they may come in and say, well, this is too big a machine. We need to go with the PCAST recommendation, with a smaller machine.

Dr. KREBS. I would like to make a comment.

Senator DOMENICI. Please, of course.

Dr. KREBS. I think the results from the Fusion Energy Advisory Committee that basically have given us direction that we will not participate in the construction of ITER in any way, shape, or form, such as was originally envisioned.

Senator JOHNSTON. We will not?

FINANCING OF ITER

Dr. KREBS. We will not. When the ITER design is finished, there will be a complete renegotiation of what the partners' roles may be. We envision moving forward as a minor partner, a very minor partner. The current budget that we have proposed is basically envisioned for the foreseeable future, both by the Fusion Energy Advisory Committee and the Department.

As a consequence, at best what you would see is a $50 million a year type of commitment of participation, and I would not at this point say it would be that. What we are hearing from our partners in ITER is that there remains interest in moving forward very strongly, and this is as much what I read in the various magazines, very strongly by the Japanese, but just as our partners at CERN want our participation even at a small level because of the capability of our scientific community, they want our participation in ITER.

Senator JOHNSTON. Sure, they want our money.

Dr. KREBS. Very small by comparison to the total, if indeed it is going to be a $10 billion investment we will not get there—they will not get there on our backs.

Senator JOHNSTON. How in the world do you think these foreign countries are going to put up the money if we do not. I mean, if the biggest, strongest country in the world is not willing to invest in ITER, do you think they are? Do they have interests?

Sure, their scientists have interests, because the scientists are the ones who are funded by this. But at the governmental level where you need to have the negotiation, nothing is going on. And I am afraid you are going to end up wasting $55 million a year, because at the end of the road, everybody is going to say, "We cannot do this; it is too expensive." The United States is not going to do it, so in the meantime, you have spent, what, a half a billion dollars?

Senator DOMENICI. But we do not have $55 million a year committed.

Dr. KREBS. We have $55 million a year currently committed to the conceptual design that will end in the middle of 1998. We are beginning initial discussions, informal discussions, with our partners about how to proceed to decide on our participation in construction. But it is at this point quite informal and indeed, we have some questions ourselves.

Senator DOMENICI. How much is the rest of the world community paying for design?

Dr. KREBS. In 1996, we were supposed to be putting in about $82 million. We are at $55 million.

Senator DOMENICI. Somebody is picking up the difference?

Dr. KREBS. Yes.

Senator DOMENICI. Can you supply that with certainty for the record? We would like to know how much, and tell us which countries are paying for design. Can you?

Dr. KREBS. Yes.

[The information follows:]

ITER EDA FUNDING

The anticipated U.S. funding for the International Thermonuclear Experimental Reactor (ITER) Engineering Design Activities (EDA) is shown in the table below. This table reflects reductions from the previously planned ¼ share U.S. participation by about $30 million in each of the last 3 years of the EDA.

U.S. ITER EDA Funding

Fiscal year	*Millions*
1993	$52
1994	63
1995	68
1996	55
1997	55
1998	55
Total	348

We do not have direct funding information for the other Parties, but based upon status reports from the ITER Director we know that Europe and Japan, as well as the U.S., have been providing their ¼ share contributions during the first three years of the EDA, while the Russian Federation fell behind in R&D and design. For the last three years of the EDA, we know that Europe and Japan expect to provide their ¼ share contributions and that the Russian Federation is likely to remain behind in the R&D area but provide their fair share of design contribution. The U.S. will likely fall short of a ¼ share contribution as indicated above.

ITER DESIGN

Senator JOHNSTON. What is the approximate amount total for design this year?

Dr. KREBS. It is about $1½ billion, I think, over 4 years. It started in 1994, is supposed to end in 1998, split four ways. But it is difficult to give you things precisely because they created essentially international units of currency that sort of were independent of exchange rates. So, it gets complicated.

Senator JOHNSTON. ITER may very well be worthwhile doing, but we are never going to get there the way we are going. I have not been able to get the President interested in making a decision on it, or anybody else. So, we are going to end up at the end of the day——

Dr. KREBS. I think you made a decision last year as to what the level of our participation in ITER construction certainly was going to be, and we heard that. And we are changing the program to respond to that.

But also, one of the things the FEAC Committee looked at hard was to note that ITER is going to be a science machine. It is going to be the place to do science as close to ignition as you are going to get, and the United States ought to be there, even if it is in a much, much diminished capacity.

Senator DOMENICI. But Senator Johnston's concern has got to be expressed by me as chairman here on the record. The fact that we are participating in this design should not be taken by anyone to mean that when we get to the end, the design is done, and now the thing is going to cost $18 billion, that America has made some great commitment to the rest. In fact, I think we will do something in this year's appropriation to make sure that is not the case.

Last year, Senator Johnston said, and I was there just as a member listening, he said unless we get all these commitments and are contractually signed, there is no use kidding ourselves. We cannot support the amount of money required for this if America is the principal player because of the potential adverse impact on so many programs.

I am not talking about the labs, just talking about basic science. It is all going to go. We know this is great science and could be the bonanza for the world. We understand that. If it succeeds we do not have any problems with energy, I assume. We will not have any problem with water. These are magnificent human achievements in terms of world problems but we do not have the money to do that and get hooked because we got involved early on with one phase.

So, I think that is the point you are making. In fact, you might even be suggesting we should not be putting that much into design.

Senator JOHNSTON. We ought to decide now whether we are going to build it or not before we spend all this money.

Senator DOMENICI. Do you have anything else, Senator?

Senator JOHNSTON. No.

Senator DOMENICI. Senator Murray, do you have any questions?

BIOLOGICAL AND ENVIRONMENTAL RESEARCH PROGRAM

Senator MURRAY. Yes; thank you, Mr. Chairman, and welcome Dr. Krebs. It is good to have you here today. First, I want to start by thanking you for the recent decision you made on extending Battelle's contract at the Pacific Northwest Laboratory. That work force has had not a lot of stability and we really appreciated your extending that and providing some needed work force stability in that area, so thank you very much.

I just have two questions. The first one is on the biological and environmental research programs. I noticed that the request for funds is less than in 1996 and I know those are really important programs for environmental research and I wanted to know if you could tell us what impacts that would have on research if that is cut back.

Dr. KREBS. Well, in large measure the reductions that we made reflected the fact that we had made some investments in construction such as the Environmental Molecular Science Laboratory, the Human Genome Laboratory at Berkeley and that that construction was sort of tailing off and although naturally, if we had had our druthers, we would have put it into research. It would have been new research.

In the case of the remaining reduction, there were certain directions that we received from Congress that were using some of those funds and so we simply—in past years, when we received direction like that, we tried to keep some of that money to fund new research and we are not doing that this year.

Senator MURRAY. So, there will not be any new research.

Dr. KREBS. That is right.

UNIVERSITY AND SCIENCE EDUCATION

Senator MURRAY. My other question is on an educational issue, which is one of my top priorities. I understand that DOE's university and science education programs have been transferred to you for the first time, and I wanted to know why that was done, and if you could give me some examples of how the national labs do help with math and science education.

Dr. KREBS. My understanding was that the Congress gave direction for those programs to be transferred to the Office of Energy Research. Actually it was not for the first time. There had been some changes made that separated them out, so in some respects, it is like coming home, and we welcome them very strongly.

The kinds of things that laboratories do in education is there are two aspects. One is we have unique facilities that can be brought to bear in the education not only of undergraduates but also high school teachers, exposing them to these things and letting them see how science works in an environment in which the answer is not in the back of the book. It is as important to them as it is to actually the pursuit of science.

The second thing that science education and research experience at laboratories give is a sense of, "Is science for a purpose?" You know, we place our high school teachers and the undergraduates in programs that have energy missions, that have medical missions. It allows them to see what science is good for and to take that message back to their students. It is, I think, a unique part of what we have, something unique that we have to bring to bear to making science education more compelling in this country.

Senator MURRAY. Many of our high schools are moving to a school-to-work- or school-to-career-type curriculum where they are working with businesses and labs, such as yours, to try and get students focused on what they will actually be doing after they finish high school. I hope that you will be able to take advantage of some of those schools and work with them. In the high schools, I know, this is mostly for higher education, but I think that that would be great and I hope you aggressively pursue that.

Dr. KREBS. Thank you.

BUDGET REQUEST

Senator BENNETT [presiding]. Good morning. I am not nearly as learned as my colleagues to talk about all of these highly sophisticated energy issues that they have been involved in for so long. I will desperately try to catch up on this committee. However, I am a businessman and my staff has gone through an exercise that anybody who can handle a balance sheet can understand and now you have to deal with it.

On page 11, your testimony says that your total for 1996 was $2,482,200,000, and we added up all the specific figures and got a different number—$2,521,200,000. There is a fairly significant discrepancy there. If that number is correct, that means that the increase you are requesting for 1997 is not $27 million but $63 million.

Dr. KREBS. I am going to have to look at it more carefully. I cannot do this math, I think, in my head in front of you.

Senator BENNETT. I can understand that. But that is one of the things that concerns me, is that you have the list and it adds up to a different number than the number there.

Dr. KREBS. We will get you that.

Senator BENNETT. I know that is not nearly as sophisticated as talking to you about all these other kinds of things.

Dr. KREBS. I will resolve the issue for you.

Senator BENNETT. If you would, I would appreciate that.

[The information follows:]

BUDGET REQUEST

The fiscal year 1997 request for Office of Energy Research programs in $2,548.6 million, an increase of $63.4 million from the fiscal year 1996 conference appropriation of $2,485.2 million. The amounts displayed in the statement for the record agree with the amounts contained in the fiscal year 1997 President's Request to Congress. Please note, that in accordance with the Department's guidance for budget preparation, which emanates from instructions from the staff of the Energy and Water Development Subcommittees of the Committees on Appropriations, the fiscal year 1996 Office of Energy Research share of the undistributed general reduction in the Energy Supply Research and Development Appropriation is displayed at the appropriation level. For Office of Energy Research programs, this fiscal year 1996 reduction amounts to $36.0 million. The attached table displays the budget request for Office of Energy Research programs.

OFFICE OF ENERGY RESEARCH—FISCAL YEAR 1997 CONGRESSIONAL BUDGET SUBMISSION

[In millions of dollars]

	Fiscal year		
	1995 Conference appropriation	1996 Conference appropriation	1997 Congressional request
Energy supply R&D:			
Basic energy sciences	596.7	654.6	653.6
Computational and technology research	175.8	150.5	158.1
Advanced neutron source	12.8		
Fusion energy sciences	333.3	227.4	255.6
Biological and environmental research	408.2	406.4	379.1
Energy research analyses	3.3	3.4	2.0
University and science education	61.5	18.9	19.9
Multiprogram energy labs-facilities support	28.7	34.1	28.9
Energy supply R&D program direction	51.0	43.7	42.2
Small Business innovation research	69.0		
Small Business technology transfer	3.4		
General reduction for use of prior year balances	−19.7	−36.0	
Total, energy supply R&D energy research	1,724.0	1,503.0	1 ,539.4
General science and research:			
High energy physics	632.1	667.0	679.1

OFFICE OF ENERGY RESEARCH—FISCAL YEAR 1997 CONGRESSIONAL BUDGET SUBMISSION—Continued

[In millions of dollars]

	Fiscal year		
	1995 Conference appropriation	1996 Conference appropriation	1997 Congressional request
Nuclear physics	326.8	304.5	318.5
General science program direction	11.4	10.7	11.6
General reduction for use of prior year balances			
Total, general science and research	970.3	982.2	1009.2
Total, energy research	2.694.3	2.485.2	2.548.6

DEPARTMENT OF ENERGY DOWNSIZING

Senator BENNETT. Talk to me about the downsizing that is going on at the Department of Energy and what you may be doing to support this or slip out from under its evil effects, or whatever your goal is.

Dr. KREBS. Well, the Secretary, as part of a strategic alignment exercise and also because of the recommendations of the Galvin Committee committed to working with the laboratories to remove about 10 percent of the costs from the laboratories.

We think we are well on the way to that. There is hardly any laboratory that has not had some kind of personnel reduction. I think the key, however, is not just reducing people but reducing unnecessary work and in order—I mean, I was at a lab before I got this job, so I have been on the critic's side of the Department.

You know, we made a lot of work for laboratories and performers of research. We have made commitments to simplify our review of business processes to enable the laboratories to undertake best practices in areas such as procurement, in areas such as personnel management.

We simplified our reviews of environment, health, and safety performance and what we are seeing is, in addition to that, the laboratories have done analyses. They have employed activity-based costing methodologies and they found, of course, in order to protect themselves from what we were doing to them, they added a little more and so we have been able to remove work, for example, with small procurements—letting people have credit cards.

I heard some really rather remarkable stories when I was out at the National Renewable Energy Laboratory where they reduced the time for some of the procurements that they let from 400 days to less than 40, cost reductions that they believe will save them $12,000 a month.

I mean, that actually only comes to about $1.4 million a year but it is those kinds of things that we have to engage in. So, that is the kind of stuff.

Senator BENNETT. Well, I salute you on that and I like the tenor of your answer, that you are focusing on commonsense kinds of issues instead of grumbling and complaining about the heartless Republican Congress.

Dr. KREBS. I have done that, but I would not do that in front of you. [Laughter.]

Senator BENNETT. We get a lot of that.

Just a general comment, and then I am through, Mr. Chairman. A bureaucracy is a bureaucracy, whether it is controlled by the Government or a corporation or a university or a think tank or anything else. And the natural order of things is that a bureaucracy can still expand, not necessarily in accordance with the amount of work to be done, it just tends to expand on its own. And it needs constant care and pruning to reduce that tendency.

I said to the Vice President when he first talked to us about reinventing Government, this is wonderful, Mr. Vice President, and I will do everything I can to support you. But I understand you are a Sisyphus. You must constantly be carrying this rock up the hill, and if you think it can be done with a single report to the Congress and single spurt of common sense and then you move on to other things, you are doomed, forever doomed. So I appreciate that you are looking at things as mundane as those you have reported to us, and I simply encourage you to continue to do that.

Dr. KREBS. I would like to make comments. It is unnecessary, I realize.

Senator DOMENICI [presiding]. Then do not make them. [Laughter.]

Dr. KREBS. I want to educate him a little bit about laboratories, because he said that he was not as good as you.

Senator DOMENICI. Go ahead.

Dr. KREBS. I was at a laboratory for 10 years, in senior management of the lab. I have to tell you I agree with you entirely. Bureaucracies do tend to grow. On the other hand, in the scientific environment, first of all, I would like to say that sometimes environments are bigger than the individuals. And so you need institutions in order to support the work, and it is always a conflict for attention.

But in a scientific environment there are not any people who are more unyielding in their efforts to root out unnecessary overhead than any group I have ever seen. And in all the 10 years, even before these efforts of the last few, we had so many task forces on our overhead budgets to reduce overhead—it is a natural—so almost in a scientific institution, I think, there are some very natural inclinations. The question is to make sure the mechanisms are there so that they can keep doing it.

Senator BENNETT. Thank you.

MINIMIZING REGULATIONS

Senator DOMENICI. Senator, I would suggest if one reads the report made by Bob Galvin, the former CEO of Motorola, you have alluded to it, one of the things that this group found was that part of the excessive cost of the laboratory was the excessive regulatory bureaucracy. Now, scientists do not like that, she is right. When I tell you the Department of Energy over time, maybe the last 10 or 12 years, has just imposed a regulatory bureaucracy on the laboratories that has to change. And they need this Department's help in changing. That is where the excessive cost is.

When you have to go through so many hoops to get everything done, and then add a whole new bureaucracy to take care of some of the regulatory impositions, and when you look back at it all it did not accomplish much, in fact, just made everything more expensive, now that is the part. I think Dr. Krebs would agree with that. The report is accurate in that respect.

Dr. KREBS. I also believe, I was explaining to the Senator, that we believe that we have taken some steps in reducing that kind of work and the workload.

Senator DOMENICI. Well, I know all the hard work being done at laboratories like Los Alamos to try to cut costs. But frankly, since you were saying that a lot has been done to minimize the regulatory imposition on the labs, I would just suggest that you take it upon yourself at my request to submit for the record all these things you have done. Frankly, I do not believe much has been done to remove the regulatory paraphernalia that is out there, but I could be surprised. So if you would choose to do that for me, if you do not choose to, you have to do it anyway. [Laughter.]

Dr. KREBS. We will be happy to do it, Senator

[The information follows:]

MANAGEMENT REFORMS AT THE DOE LABORATORIES

A series of actions already under way will result in the laboratories being much more cost-effective by the year 2000. The Department has:

—Reformed and dramatically reduced its directives and orders, which are the means by which the Department establishes formal requirements and guidance for the conduct of work by employees of the Department and its contractor workforce. During 1995, the Department reduced the number of orders by 50 percent (from 312 to 156) and revised the 100 most burdensome orders into user-friendly documents.

—Piloted a "Necessary and Sufficient Process" approach to establishing standards for protection of the safety and health of the workers, public, and environment near the DOE laboratories. This process matches requirements with the specific work to be done resulting in much-reduced administrative and cost burden on the laboratories. Initial pilots have been conducted at six laboratories and additional pilots are under consideration.

—Begun to move from a system of self-regulation to a system of external regulation. The Department's existing complex system of self-regulation emerged from the Manhattan Project, the Atomic Energy Commission, and congressional actions related to the urgency of the nuclear weapons mission and the need for secrecy at the weapons production complex. The Department will transfer regulatory responsibility for safety at DOE nuclear facilities to either existing or new external regulators. An advisory committee on external regulation issued its report in December 1995, and the Department will make recommendations to the Secretary on implementing the report by the end of May 1996.

—Begun reform of the audit/appraisal process, which includes business practice reviews, technical reviews, and environment, safety, and health reviews conducted by the Department and other review groups. The Department's pilots have drastically reduced the number of reviews. During the pilot period (April 1995 to April 1996 for 16 laboratories) the Department has reduced the number of business practice reviews from 324 to 21, person days of effort from 28,999 to 9,300, and costs from $10.2 million to $2.8 million.

—Revised procurement procedures. The Department's M&O contractors previously had been expected to conform to Federal purchasing principles and practices. In 1995, the Department replaced this system with one that allows contractors to use best commercial practices. The Department and its contractors are now working to identify and share best commercial procurement practices.

In addition to these reforms at the Department, many of the DOE laboratories have eliminated unnecessary administrative functions and reengineered processes to cut costs. For example, the National Renewable Energy Laboratory has cut its subcontracting process from 140 days and enabled the lab to reduce its procurement workforce by 32 percent. Similarly, the Pacific Northwest National Laboratory launched a laboratory-wide reengineering effort during 1995 that will cut administrative costs by 30 percent (in excess of $40 million) in two years. Initiatives such as these enable the laboratories to cut controllable overhead costs and enhance productivity.

Senator DOMENICI. I do not want an answer that says it is outside the scope.

Dr. KREBS. I will get somebody else to work on it, too.

Senator DOMENICI. Tell the Secretary the Senator asked for that for this hearing so we will get it. It would be neat to know that you have done a bunch of this.

Dr. KREBS. I am worried about it, but I think we have made a lot of starts.

Senator DOMENICI. The reason I am concerned about it is because the suggestion of that committee as the way to get around it is to privatize the laboratories. You know that is a serious problem when they suggest the only way you can do this is to get rid of the Government control of it and put it on some other wavelength. I am not sure that is the way to treat some of these laboratories, but I think some will catch on to that as a tradeoff.

LARGE HADRON COLLIDER

Let me move on to a couple of other issues for just a moment. First, on the large hadron collider Senator Johnston referred to. I think it is very important that you answer for the record with some detail. If you have to talk to the commission that worked on this, fine. I think we should know, for the record, what the eminent scientists say about a contention that this collider cannot do what the bigger SSC was proposed to do. We were told we needed the SSC. Now, how is this one justified? So, I think we need some details on comparing some of the efforts that it can accomplish vis-a-vis the SSC which we terminated. Can you do that for us?

Dr. KREBS. I would be happy to provide it.

[The information follows:]

LARGE HADRON COLLIDER

It is, of course, true that the LHC will not be able to do all the science planned for the SSC. However, according to the High Energy Physics Advisory Panel (HEPAP) Subpanel on "Vision for the Future of High-Energy Physics (Drell Report)," "the Superconducting Super Collider (SSC) energy * * * was chosen to allow a thorough exploration of electroweak symmetry breaking, including the discovery of the Higgs (particle) over its entire mass range * * *. The European Laboratory for Particle Physics' (CERN) Large Hadron Collider (LHC), * * * represents a significant step beyond the (Fermilab) Tevatron on the energy frontier. Although the LHC is not as energetic as the SSC, it has considerable discovery potential." The LHC now represents the highest energy frontier, albeit only about one-third of the SSC energy, and with its higher luminosity it will access a significant portion of the "window of opportunity" that the SSC would have covered entirely. The LHC and the SSC represent similar capabilities except for the difference in energy—14 TeV for the LHC compared to 40 TeV for the SSC. The Drell Subpanel concluded that the LHC potential is worth the investment of about $450 million by the U.S. More than 500 U.S. scientists have proposed to join the LHC enterprise indicating their strong views of the importance of the science which will be done with the LHC.

The LHC, when completed in nine or ten years, will be at the energy frontier and recent developments tend to support the contention that LHC experiments could well result in the next round of major discoveries in this area of science. For example, the theoretical case for supersymmetry has improved, although there is still no observational evidence for it. However, if it does exist, it predicts the existence of 5 Higgs particles, the lightest of which must have a mass less than about 150 GeV/c^2, which would be accessible at the LHC. Furthermore, recent detector developments, based on SSC detector R&D, appear to make it more likely that the detectors will be able to handle the luminosity of the LHC, although it will still be difficult in this environment.

CLEANUP TECHNOLOGIES

Senator DOMENICI. That will help Senator Johnston, too, you understand.

Let's talk about cleanup technologies for just a moment. The committee has been concerned that the Department has not provided in the past sufficient attention and resources to long-term basic research which will ultimately reduce cleanup costs. You all have agreed that we ought to put some more emphasis on that, and the committee directed that the Office of Energy Research have the management responsibility for $50 million of the $441 million provided for technology development within the Defense Environmental and Waste Management Program.

Now, I continue to believe that additional basic research is going to be necessary to make DOE's cleanup costs manageable, and affordable, I might say. So, I would like to know, has the program the committee initiated last year had some effect or some effectiveness? One of my frustrations, and I think it is kind of generic to everyone that serves on this committee, is that cleanup technology programs to date have been bothered by the notion that might be called a not-invented-here syndrome.

That is our own invention, but that sometimes means that new technologies demonstrated at one site are not used at another site because it is not invented here. Have you found a way of assuring that technologies developed with this $50 million will be implemented to clean up sites if they apply regardless of where they were invented or found out about?

Dr. KREBS. Well, I think it may be a little too early to say that we have got the mechanism. What I can say is that we have put out a solicitation. We expect by, I think it is, the end of June to make awards, after a peer review process, and I think the key is going to be to sustain funding for this research over a period of years, because we are talking about basic research, and so it means that although we are targeting the areas of research, and we may see some impacts in the next few years, we may not.

I think one of the things that is critical is that this is a collaboration with the people in the environmental management program at the headquarters, but also on sites. The participation of the laboratories I believe is going to be critical to making sure that there is a connection between the research that is carried out by university investigators and the problems that are located on the sites.

So the laboratories become key mechanisms. The processes by which we review the proposals will both determine the quality of the proposals and the relevance. So I think that is what we can say at this point.

Senator DOMENICI. Well, I want to say to you I am hopeful that we can say something in this year's report. We are very serious about this issue of making sure that something that is invented that is good not be subjected to this not-invented-here parochialism of we are working on one, let us wait, and I have not yet figured out some way to sensitize the system to it. For now, we rely on people like you. But if we find some situation where you have come up with some promising ideas and they are not used somewhere, because it is obviously another laboratory concept, so why should we use what they did at say Brookhaven. I am suggesting that will not set easy with the committee. We are very, very tired of that attitude in the cleanup program of the country.

Let me move to the human genome. It is good news, right?

Dr. KREBS. Right.

HUMAN GENOME

Senator DOMENICI. In fact, I gather aside from the details of how much we have done, the truth of the matter is we are ahead of schedule and it is going to cost less than we thought for the overall—we are going to get finished a little sooner. And I am very, very excited about it.

What I am wondering now is everybody knew when we started the first phase that we were mapping the chromosome system of the human being, and that ultimately there would have to be a sequencing. In the meantime when you map, obviously, scientists can borrow the piece that is mapped and do their own sequencing, if they have located startling enough sites or something very significant. But the next phase, when we were told about sequencing, more extensive and tougher.

Have we been thinking with the National Institutes of Health what the Department's role will be in this research once the human genome has been mapped?

Dr. KREBS. Yes; and, in fact, in the 1997 budget we are proposing an increase, even within the overall reduction that biological and environmental research is suffering, an overall increase for our Human Genome Program that will enable us to step out on high throughput sequencing in conjunction with the efforts that are being made in the National Institutes of Health. And I think that already you may be aware that the National Institutes of Health has announced six centers that they are going to begin to look at advancing the sequencing effort.

Our request in 1997 enables us to complement that to maintain the efforts in our national laboratories, and also still to develop the best of new technology wherever we can get it, whether it is in universities or national laboratories.

So I see this as very complementary. And in my comments I noted the DOE funded clone libraries, the data bases, everything, they are integral parts of the centers that NIH has set up. And I think that they were developed because of the special capabilities of our laboratories.

Senator DOMENICI. Well, I am not aware of the six centers. I would like you to amplify your testimony and tell us in the record what they are planning.

Dr. KREBS. I read it in Science magazine, but we can get you more than that.

Senator DOMENICI. Well, you are a big enough wheel you can get it authenticated, can you not?

Dr. KREBS. Yes; I can.

Senator DOMENICI. The other thing I need to know in more detail is what we plan to do to make sure that the Department of Energy is moving ahead comparably. Whenever the NIH tries to take over the whole show, just remind them that but for this poor little Energy Department they would not have even had a program.

Dr. KREBS. I understand that.

Senator DOMENICI. They do acknowledge that now. It took them a few years.

Dr. KREBS. I am defensive about it myself.

[The information follows:]

HUMAN GENOME RESEARCH AT DEPARTMENT OF ENERGY LABORATORIES

The Department of Energy has Human Genome Centers at Lawrence Berkeley, Lawrence Livermore, and Los Alamos National Laboratories; however, many of the National Laboratories contribute their unique, multidisciplinary capabilities to the international Human Genome Project. These capabilities include a prominent cadre of biological scientists, access to high performance computing facilities, and cutting-edge technological resources such as robotics. This project is enormous in scope. Three billion base pairs of DNA must be sequenced and the information encoded must be deciphered and stored in a manner that allows easy access, continuous updating, and use by scientists all over the world. This massive project requires the development and integration of diverse biological resources, technology, including automation and high throughput sequencing methodology, and tools for data management and analysis. These are not tasks that can be accomplished by a single laboratory or agency. However, the genome project's goals are being met through an international effort that includes coordinated and complementary efforts of the Department of Energy and the National Institutes of Health. The contributions of the Department of Energy National Laboratories to the international Human Genome Project include:

Lawrence Berkeley[1].—Department of Energy's flagship sequencing center; carries out all sequencing for two National Institutes of Health-funded sequencing centers (Rubin and Cox labs); uses a directed DNA sequencing strategy (requiring development of a good map framework to allow the assembly of sequence reads into extended complete sequence).

Lawrence Livermore[1].—Mapping technology, resources and tools; partner in IMAGE cDNA resource; informatics, robotics, and automation; uses a shotgun sequencing strategy (relies heavily on complex computer programs to properly align and assemble many randomly acquired sequence reads into extended, complete sequence).

Los Alamos[1].—Mapping technology and resources; flow cytometry single molecule detection and sequencing; sample sequencing strategy.

Ames.—Capillary electrophoresis technology for high throughput sequencing.

Argonne.—Sequencing by hybridization; advanced DNA chemistry in support of DNA sequencing and medical diagnostics.

Brookhaven.—Sequencing by primer walking, i.e., sequential sequence reads are assembled based on an area minimal overlap with the previously sequenced and adjacent DNA fragment.

Oak Ridge.—Informatics [internationally recognized Gene Recognition and Analysis Internet Link(GRAIL) for gene identification]; mass spectrometry for DNA analysis; mouse model for human gene identification.

Pacific Northwest.—DNA analytic tools.

DEPARTMENT OF ENERGY HUMAN GENOME PROGRAM PLANS

The goal of the international Human Genome Project is to analyze, at the molecular level, the entire human genome, i.e., the DNA found in a typical human cell. The Department of Energy Human Genome Program has, from the outset, focused on the development and application of improved technology for mapping, sequencing, and informatics needed to ensure that the project could be completed, i.e., that available technologies were automatable and cost-effective. When the Department of Energy and the National Institutes of Health published their first five-year plan for the U.S. Human Genome Project in 1990, DNA sequencing was a low throughput, high-cost technology. It was, therefore, essential to focus on improving the technology for DNA sequencing and not on sequencing itself. However, during the past year, DNA sequencing technology has been improved to the point where large-scale sequencing operations may be both productive and cost-effective. As a result, the Department's Human Genome Program will increase high throughput sequencing in fiscal year 1997.

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[1] DOE Human Genome Centers.

Although improvements in DNA sequencing have been achieved and are being implemented, the Department of Energy will continue to support technology development and the integration of technologies for all aspects of DNA sequencing as an important component of its program. The process of scaling up from an experimental DNA sequencing laboratory to a high throughput DNA sequencing production facility is more complicated than simply operating on a larger scale. Quality assurance plans will be developed and implemented to ensure the quality of reagents, samples, and processes used for sequencing, and of the DNA sequence itself. Systems for more efficiently preparing and tracking the vast number of samples and reagents used for sequencing will also be implemented. The interfaces between the different steps in the overall sequencing process are also being improved.

Finally, the Department will continue to exploit its unique information resources and computing capability for the analysis and interpretation of DNA sequence data. Support for basic database research and the development of software tools that are of value to the genome community will continue. These investments in biological information systems or databases are directly responsive to the special needs of the genome research community. In addition, they interface with other biological databases. These genome-related databases are critical to genomic research by providing the results of genomic research to the broader scientific community in a timely fashion.

The Department of Energy Human Genome Program and the international genome project will continue to change as they reap the benefits of the Department's investment in cost-effective, automatable, high throughput DNA sequencing technology. The dramatic increases in DNA sequence being produced and the equally dramatic reductions in the cost of DNA sequencing are strong testimony to the success of the Department's long-range strategy to invest in technology development. The payoff of those investments is the increased investment in high throughput DNA sequencing being made by the Department of Energy and laboratories around the world.

GENOME PRIVACY LAWS

Senator DOMENICI. Let us talk about one other area in genomes—privacy laws. We understand, and this may not be your expertise, NIH has the responsibility in this area. We set money aside every year. I cannot remember how much, but a percent is set aside. I think eight States have passed some kinds of statutes, Dr. Krebs, with reference to the relevancy of genetic evidence and privacy. I wonder if it would be appropriate to pursue national legislation on these issues based on recommendations of your department and the National Institutes of Health?

Dr. KREBS. We will look at it and get you something back.

[The information follows:]

GENOME PRIVACY LEGISLATION

Concerns about the privacy of personal genetic information have been at the forefront of the societal issues raised by human genome research since the outset of the joint Department of Energy-National Institutes of Health Human Genome Program in 1990. In fiscal year 1993, the Ethical, Legal, and Social Implications program of the Department of Energy Human Genome Program awarded a two-year grant to Professor George Annas of the Boston University School of Public Health to research and develop a model genetic privacy act and accompanying commentary. This model act, released in late 1994, has been used in at least eight states as a basis for legislation being considered for enactment. The state of Oregon did enact a privacy law in late 1995 which was based, in part, on the Annas draft law. Senator Hatfield (Republican-Oregon) subsequently introduced a bill, SB 1416, into the United States Senate also based, at least in part, on the Oregon law. To date, as far as we know, only Oregon has actually enacted a law dealing with genetic privacy issues and based on the Department of Energy-funded Annas draft law. The Department's Ethical, Legal, and Social Implications program funds grants to investigate genetic privacy issues and to educate various communities, such as lawmakers and judges, on this and other issues. The Ethical, Legal, and Social Implications program makes no effort to influence legislation at either the state or national level. The intent of the Annas project was to research the issues of genetic privacy and produce a draft law that others could study and use as they felt was appropriate: As is the case for all Department of Energy-funded research with policy implications, research is funded to provide the scientific underpinnings for the development of policies or laws, but not for the development of those policies or laws.

Senator DOMENICI. I think in the meantime you ought to look at a couple of bills that have been introduced as you pull this together for your testimony. I think maybe we ought to know whether they are on the right track. I think there are a couple of them up here. But we keep saying it is important, you keep saying it is important, and it gets frightening at some point what might happen.

Now, we are preaching ethics and we are teaching it all around the country in terms of this. But look, the commercial part of this is going to be so anxious and filled with energy that we have got to have some rules.

SCIENCE EDUCATION

The science education that you do, last year this committee directed that the education programs be centralized within the Office of Energy Research.

Dr. KREBS. They have.

Senator DOMENICI. I assume that has happened.

Dr. KREBS. Yes.

Senator DOMENICI. I would say unfortunately because of opposition from the House we were able to provide only $20 million, where we thought a better program would amount to around $55 million. That is under the rubric of university and science education. This year the Department has requested $20 million, essentially. Actually, which turns out in some areas to be a slight increase.

Now, I have some specifics. The Secretary has recently directed program offices to reaffirm her commitment to historically black universities and universities serving Hispanic populations by increasing their contributions in these areas. Do we know how much the Secretary has indicated should be provided to Hispanic institutions and black colleges?

Dr. KREBS. The Secretary has set goals for the Department's investment in these institutions. The goals for historically black colleges and universities is $75 million, and for Hispanic institutions is $20 million in 1996. If I am incorrect, I will correct it for the record, but that is my understanding of what her goals are.

[The information follows:]

HBCU AND HSI FUNDING GOALS

The Secretary has challenged the Department to meet a funding goal of $75.0 million for Historically Black Colleges and Universities initiatives and $20 million for Hispanic Serving Institutions. Each of the DOE Program Secretarial Offices will be given a percentage dollar amount as their "fair share" of the total goal. A formal tax will not be levied on DOE programs.

Senator DOMENICI. OK, so this kind of funding must be broader than——

Dr. KREBS. That is right, and I think it is important to say that these institutions may well be capable of contributing to our missions from the point of view of research and human resource development. And that is why I think these goals do not have to be confined within the education programs.

Senator DOMENICI. So does the Office of Energy Research coordinate those programs, or is it university and science education programs?

Dr. KREBS. For these goals, they are coordinated—to my knowledge, they are coordinated out of the Office of Minority Economic Impact. They are not coordinated simply by the Office of Energy Research.

Senator DOMENICI. Well, I do want to say that somebody is going to look at this, so we might as well raise the point. I do not know that the Secretary has the authority to impose this kind of a tax on the other programs, and I think you ought to take a look at it and share with us your authentication of it in house, so we can make sure it is OK.

Dr. KREBS. As I say, it is goals.

Senator DOMENICI. All right. You understand I am not opposed. I am on your side. I just want to make sure we are OK.

I would tell you, and share this with Senator Bennett, too. Recently, I was told about the number of Ph.D.'s in science that we are producing in America, and then we were given more than an estimate, a good number as to what percent were minorities, and I was astounded. Apparently, the Ph.D.'s in science in the year 1995 amounted to around 6,400. In my recollection, I think that is right. And the number of minorities was 124 Ph.D.'s in science.

Now, that is a rather startling thing, and it is a phenomenon that puts a lot of pressure on laboratories, because you understand they are being asked to hire minority department heads and the like, and they should be. But they go out and try to find them, and here we are with these kind of ratios. I mean, I am not a quota person, but I am surely thinking we could sensitize and encourage more of the minorities in this field, and we ought to do that. That is part of this program.

Dr. KREBS. I believe another way to look at it is we are certainly not making use of all the talent that is out there.

Senator DOMENICI. I agree with you.

SPALLATION NEUTRON SOURCE

My last question has to do with the advanced spallation source. We have been working on this for a long time. It is an ongoing evaluation. A request for basic energy sciences includes $8 million to continue the preconstruction of the advanced spallation source at Oak Ridge National Laboratory. In the fiscal year 1996 conference report, Congress asked the Department to evaluate the options of upgrading existing spallation and reactor sources to provide neutrons in the near term to meet the requirements of the scientific community.

I understand that review has resulted in a proposal to upgrade a reactor at Oak Ridge, and to provide a short pulse spallation source at Los Alamos. How does the cost of the advanced spallation source compare to the cost of the two upgrades?

Dr. KREBS. I believe that what we did, and this can be a little bit long, it is a somewhat longer answer, I do not want to give you a simple answer on what the costs are because I think that both of these laboratories have made proposals, but it has to be seen in a larger context, if you will.

What we did in response to Congress' direction in the appropriations conference report, was to bring together two subcommittees to look at the upgrades for spallation sources and the upgrades for reactors. They reviewed proposals from Oak Ridge, Brookhaven for the two reactors, and from Los Alamos and Argonne for spallation sources.

The full committee, the Basic Energy Science Advisory Committee, recommended that we maintain the Base Research Program, they recommended that we continue the design activities for the spallation neutron source; they recommended that we go forward with upgrading the reactor at Oak Ridge, the reactor at Brookhaven, and consider the long pulse source at Los Alamos, if some additional work shows that it is as interesting as it looks.

The issue of a short pulse source was addressed by the full committee, and particularly if we cannot make a decision in a near term about—they sort of recommended that we take a—if we cannot do the bigger spallation neutron source, then we should consider a short pulse source upgrade of some sort. We are putting forward now, after receiving this advice, a plan to the Deputy Secretary and the Secretary. It is not complete yet. Clearly, Los Alamos has an interest in an upgrade of a short pulse source. It would be an opportunity for collaboration. The high flux isotope reactor at Oak Ridge is also of interest.

Now, let me, having said all of that, the spallation neutron source, the advanced spallation neutron source, would be about $1 billion. The upgrade for the Oak Ridge reactor is about $50 million. The upgrade shared for the short pulse source at Los Alamos, if shared by defense programs and energy research, would be about $40 million, plus or minus a couple, I just do not remember.

The Brookhaven reactor upgrade would be less than $200 million. So, if you add all of that up you are getting something that is less than $1 billion, but it is still significant.

Senator DOMENICI. In any event, neither the upgrade of the Oak Ridge reactor or the short pulsed source at Los Alamos, or the combination of the two, is the ultimate long-term solution?

Dr. KREBS. That is right.

Senator DOMENICI. But they will get us through a gap, through a period of time when we proceed with some designs, some further investigations, right?

Dr. KREBS. Right. The way I like to put it is they assure our eminence, but not our preeminence.

Senator DOMENICI. OK. I am just kind of wondering, where do all these people come from?

Dr. KREBS. Some of them are mine. Would you like to be introduced?

Senator DOMENICI. It just seems to me it is great to have such interest in this little hidden hearing. Normally, we get about six people. Did you bring them, Senator?

Senator BENNETT. No; as a businessman I am saying the meter is really running here.

Senator DOMENICI. We will take care of that. We are just about through, Senator.

Yes; please introduce those who have accompanied you today.

Dr. KREBS. Well, I have got P.K. Williams from high energy physics; Dave Hendrie runs our Nuclear Physics Program; Ari Patrinos, Biological and Environmental Research Program; John Wooley is working with me in the front office, but he is really a biologist and he has had a lot to do with the Human Genome Program; this is somebody from our CFO's office; this is Dale Stubenrauch, who worries about FTE's and personnel; this is Ralph DeLorenzo, who holds the numbers and keeps me honest, and he will answer Senator Bennett's question; Ann Davies from fusion; Fred Tathwell from congressional; Toni Joseph, who is the mother of the laboratories and our University Science Education Program. She is going to make sure of that. This is Pat Dehmer, who is the keeper of neutrons.

Senator DOMENICI. That is you?

Dr. KREBS. Basic Energy Science Program Associate Director.

Senator DOMENICI. You and I are going to get to know each other again.

Dr. KREBS. And John Clark, who is the Associate Director for Management Administration, who is helping us get work out of the system.

Senator DOMENICI. And the other people in that back row are from your Department?

Dr. KREBS. There are a few. There are some lab people here, too.

Senator DOMENICI. Which are lab people here? Anybody? Put up your hands. So some of you are outsiders who have an interest. All right. That is great. I do not need to know all of you. We will meet you when you have a big enough interest.

CONCLUSION OF HEARINGS

Thank you very much. This subcommittee stands in recess until the call of the Chair.

[Whereupon, at 11:22 a.m., Tuesday, April 23, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

Material Submitted Subsequent to Conclusion of Hearings

[CLERK'S NOTE.—At the direction of the subcommittee chairman, the following statements received by the subcommittee are made part of the hearing record on the Fiscal Year 1997 Energy and Water Development Appropriations Act.]

NEW YORK AND NEW JERSEY WATER RESOURCE DEVELOPMENT PROJECTS

PREPARED STATEMENT OF LILLIAN C. BORRONE, DIRECTOR, PORT COMMERCE DEPARTMENT OF THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

I am Lillian C. Borrone, Director, Port Commerce Department of The Port Authority of New York and New Jersey Joining me are Joseph T Grossi, Executive Director, New Jersey Department of Commerce and Economic Development's Maritime Advisory Council, and Bridget Wieghart, Vice President for Transportation, New York City Economic Development Corporation. On behalf of the civic, trade, labor and governmental interests listed on the cover of our statement, we request that sufficient federal funds be appropriated in Fiscal 1997 for the design, construction and maintenance of essential navigation projects in the Port of New York and New Jersey under the U.S. Army Corps of Engineers' Civil Works program. We thank you, Mr. Chairman, and members of the subcommittee for allowing us to make our funding needs known to you.

The request we make for funds for the Port of New York and New Jersey is not a casual one. Although federal budget recommendations are not available, the sums we ask for are what we believe necessary to continue and advance existing navigation projects and provide for much-needed studies, based on our ongoing partnership with the Corps of Engineers. We and the other local sponsors are prepared to provide the local share of funds as required. All told we recommend an appropriation of $39.65 million in federal funds for Fiscal Year 1997 allocated among construction, studies, and operation and maintenance of federal navigation projects.

Category	Port Recommendation
Construction	
Kill van Kull and Newark Bay Channels, NY & NJ	$750,000
New York Harbor Collection and Removal of Drift, NY & NJ	100,000
New York Harbor and Adjacent Channels (Port Jersey), NJ	500,000
Studies	
New York Harbor and Adjacent Channels (Claremont Channel), NJ	400,000
New York and New Jersey Channels, Arthur Kill Channel, Howland Hook Marine Terminal, NY	1,000,000
New York Harbor Anchorages, Red Hook Flats Anchorage, NY	100,000
New York and New Jersey Channels, Perth Amboy Anchorage, NY & NJ	100,000
Operation & Maintenance	
Dredged Material Management Plan	6,000,000
New York and New Jersey Harbor, Condition Surveys	700,000
Maintenance Dredging Construction, Selected Channels	30,000,000
Total	$39,650,000

Kill van Kull and Newark Bay Channels, NY & NJ

Kill van Kull and Newark Bay Channels, NY & NJ is a harbor deepening project authorized for construction in the Fiscal Year 1985 Supplemental Appropriations Act (Public Law 99-88) and the Water Resources Development Act of 1986. Local cooperation is being provided by The Port Authority of New York and New Jersey of which the estimated non-federal cost is approximately $263 million for this project. Phase I of this project, the deepening of the channel from 35 to 40 feet, is nearly complete at an estimated cost of $300 million. The construction schedule for this portion of the project was originally estimated to be 3 years but actually took 8 years. We have asked the Corps of Engineers to re-estimate the cost for Phase II of the authorized project for deepening the channel to 45 feet, but they have been slow to respond. The channels at issue serve the busiest and largest container port facilities on the Atlantic seaboard and we have heard a consistent message from the steamship lines that service the Port Newark and Elizabeth Marine Terminals of Newark Bay and from the harbor pilots that the completion of the project to 45 feet is an absolute necessity. The full benefits of the authorized 45 feet navigation project have been postponed due to construction delays. We believe it is imperative that Phase II engineering and design be completed as soon as possible so that construction can commence immediately and we will be prepared to provide local share.

Mr. Chairman, based on our understanding of the project and schedule we request that $750,000 be appropriated in Federal Fiscal Year 1997 to complete the General Re-Evaluation Report, now underway, by June 1997 and to allow construction to resume in FY 1998.

Operation and Maintenance

Under the category of Operation and Maintenance, the past Administration's budget recommendations have been satisfactory for the maintenance of the Port of New York and New Jersey federal channel system and have allowed the Port to continue to contribute nearly $20 billion to the regional economy. Once the federal budget recommendations are available to the public, we may seek to change our recommendations known to the Committee should the need arise. Last year members of our congressional delegation advised this subcommittee of the severe problems we are experiencing in the management of dredged materials, including sediments dredged from terminal berths, for lack of adequate disposal facilities. I believe it was last year that General Hunter told the House appropriations subcommittee that our port was heading toward a crisis. Mr. Chairman, you should be made aware that the Port of New York and New Jersey **is** facing a crisis that is starting to take its toll in the lack of maintenance dredging by the Corps of Engineers of the federal channels serving commercial interests because there is no viable disposal alternative for dredged material unsuitable for ocean disposal. The Corps has made presentations that list parts of federal channels in the Arthur Kill, NY and NJ; Bay Ridge/Red Hook, NY, Hackensack River, NJ, Hudson River NY and NJ; Eastchester Creek, NY; and Portchester Harbor, NY as having approximately 3 million cubic yards of shoaled contaminated sediments that need to be dredged. These projects have been deferred and will continue to be deferred unless a solution is found.

Mr. Chairman, we fear that the FY97 Corps budget will not include funding for channel maintenance construction because practical disposal sites have yet to be identified. If funding is omitted for that reason it will only aggravate the problem in our port. Funds should be appropriated to ensure they are obtainable when suitable disposal sites are available. We further believe not providing funds for maintenance dredging would be inequitable. The New York Customs District collects more than $70 million for the Harbor Maintenance Trust Fund. Today, we seek $30 million to be appropriated for maintenance dredging construction for the projects that sorely need restoration to authorized project depths so that the shippers and vessels that pay the tax can see the benefit of their contribution.

Mr. Chairman, on a related matter, Congress authorized the Corps of Engineers to provide condition surveys of the navigation channels on a bi-annual basis and we respectfully request an appropriation of $700,000 to perform this task to ensure safety of navigation and protection of the environment. Furthermore we ask that $6 million be appropriated to complete the much-needed studies of the Dredged Material Management Plan which will provide solutions to the dredged material disposal crisis of the Port of New York and New Jersey. But I must say, we are frustrated by a federal study process that takes so long to complete before real solutions can be implemented. Regional discussions that include the states and federal agencies are in their third year and while progress has been made there are no immediately implementable disposal alternatives in the region. Nor has there been agreement on disposal facilities to provide capacity for the long term. Key to most any solution is the readiness of the federal government to participate in not only planning but in the construction of a disposal facility. It is our fervent hope that this Congress will clearly direct the Corps of Engineers to participate in the construction of confined disposal facilities in ports where federal and local dredging projects require it. In total, we are requesting $36.7 million in Operation and Maintenance appropriations, representing approximately one half of our contribution to the Harbor Maintenance Trust Fund.

PREPARED STATEMENT OF JOSEPH T. GROSSI, EXECUTIVE DIRECTOR, NEW JERSEY DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT'S MARITIME ADVISORY COUNCIL

Mr. Chairman and distinguished members of the Subcommittee, I am Joseph T. Grossi, Executive Director, New Jersey Department of Commerce and Economic Development's Maritime Advisory Council..

New York Harbor and Adjacent Channels (Port Jersey Channel), NJ

The Port Jersey Channel in Bayonne, New Jersey, currently serves 15 shipping lines at Global Terminal. This facility handles annually over 400 vessel arrivals with approximately 200,000 twenty-foot unit containers. More than 300 terminal employees with an annual payroll of $21 million, as well as another 120 contract workers, depend on this facility for their livelihood. As a privately owned terminal, Global pays over $4 million in federal, state and local taxes annually. In addition, the channel also provides access for the U.S. Military Ocean Terminal and the Port Authority Auto Marine Terminal. This channel improvement was authorized for construction by the Water Resources Development Act of 1986.

Recent events such as new testing protocols and criteria for dredged material have complicated matters and additional disposal alternatives had to be studied. The State of New Jersey is evaluating potential upland disposal sites and is prepared to enter into a project cooperating agreement. Therefore, we request $500,000 for this project to complete the study and finalize conditions of local cooperation and move this project into construction of the channel to a project depth of 41 feet below mean water in Federal Fiscal Year 1998.

New York Harbor and Adjacent Channels (Claremont Channel), NJ

Located on the Hudson River in New Jersey, Claremont Channel has an average depth of 27 feet mean low water. A project to deepen Claremont Channel to 42 feet mean low water was authorized for construction in the

Water Resources Development Act of 1986. Although authorized to 42 feet, the Phase I modified project will provide adequate shipping economies with a 34-foot channel.

Two scrap metal exporting companies and a crushed stone aggregate terminal are the major users of this channel. The scrap metal exports have averaged over 600,000 long tons per year and are by far our region's number one export. Meanwhile, the crushed stone transshipments approach 4 million tons annually. Combined, these three firms employ 300 persons directly and provide nearly 3,000 indirect jobs through suppliers, truckers and longshoremen.

We request $400,000 in appropriations to conclude preconstruction engineering design work for improvements to the Claremont Channel. The State of New Jersey supports this project as well and has expressed an intent to fund the non-federal share and is studying potential upland disposal sites.

New York and New Jersey Channels, Raritan Bay Anchorages, NY & NJ

The **Perth Amboy Anchorage, NY & NJ,** is part of the New York/New Jersey Channels project. It was constructed to accommodate ocean bulk vessels and tankers. There is no additional capacity within this anchorage to accommodate today's modern tankers. The anchorage was dredged to a depth of 37 and 25 feet deep. This design cannot accommodate today's modern ships which are almost 1,000 feet long with drafts of 40 feet or greater.

The Corps has the authority to undertake this feasibility study of the Perth Amboy Anchorage as part of the New York and New Jersey Channels and published as House Document 18, Seventy-first Congress, Second Session. The States of New Jersey and New York support this project and have expressed an interest in funding the non-federal share and are evaluating potential upland disposal sites. Therefore, to provide safe navigation and maintain our bistate port's capability to accommodate today's tankers, we urgently request that $100,000 be appropriated to commence a feasibility study for the deepening of the Perth Amboy Anchorage.

PREPARED STATEMENT OF BRIDGET WIEGHART, VICE PRESIDENT FOR TRANSPORTATION, NEW YORK CITY ECONOMIC DEVELOPMENT CORP.

Mr. Chairman, I am Bridget Wieghart, Vice President for Transportation, New York City Economic Development Corporation.

New York Harbor Collection and Removal of Drift, NY & NJ

We are here today requesting an appropriation of $100,000 for this critical project. **The New York Harbor and Collection of Drift Project, NY & NJ,** removes sunken hulls and decaying shore structures that are the sources of dangerous and costly harbor drift which also fouls our beaches. The Corps of Engineers has estimated that nearly 18,000 commercial, public and recreation vessels collide annually with drift in our port causing damage to propellers, shafts and hulls. The annual associated repair costs and other economic losses average greater than $53 million. This project was authorized under the Water Resource Act of 1974, Water Resources Development Act of 1976, the Supplemental Appropriations Act of 1987 and the Water Resources Act of 1988 with an annual authorization of $6 million.

These funds, in addition to FY96 monies carried over, are to be used to continue construction along the Brooklyn II Reach on the New York side where there is very serious structural deterioration of many of the pier structures. The funds would also be used to continue construction of the remaining work in the Weehawken-Edgewater Reach, and undertake removal of derelict barges in the Passaic River, and to continue the engineering and design of Bayonne, Shooters Island, Kill van Kull, Arthur Kill, NY and NJ reaches. Mr. Chairman, there is much work to be accomplished and we thank you for your consideration of this request for a federal budget appropriation of $100,000.

New York and New Jersey Channels, Arthur Kill Channel, Howland Hook Marine Terminal, NY and Tosco Oil Terminal, NJ

The **Arthur Kill Channel, Howland Hook Marine Terminal** project was authorized by the Water Resources Development Act of 1986 and in the Water Resources Development Act of 1992, Section 329 the Secretary was authorized to complete planning and design of the project. The channel improvement includes deepening the existing 35-foot channel to 41 feet from its confluence with the Kill van Kull Channel to the Howland Hook Marine Terminal and Tosco Oil Terminal, NJ, and selected widenings and realignments of the channel for safety. The Port Authority has invested $35 million to modernize this terminal and, with New York City, approximately $18 million was spent for the maintenance dredging required to put this terminal in service. Therefore, we respectfully request $1 million to be appropriated to fully realize the full economic benefits of the re-opening of the Howland Hook Marine Terminal by completing the General Re-Evaluation Report in order to initiate construction in Federal Fiscal Year 1999.

New York Harbor Anchorages, NY & NJ

The **Red Hook Flats Anchorage, NY**, is part of the New York Harbor and Adjacent Channels project. It was constructed to accommodate ocean going cargo ships and tankers. There is no additional capacity within this anchorage to accommodate today's modern vessels. The anchorage was designed by the Corps of Engineers in the early 1960s for a vessel averaging 525 feet in overall length and with a draft of 30 feet. Today's modern ships are almost 1,000 feet long with drafts of 40 feet or greater, therefore requiring additional space and depth beyond that allowed for in the original design.

Therefore, to provide safe navigation and maintain our bistate port's capability to accommodate today's vessels, we urgently request that $100,000 be appropriated to commence a feasibility study for the deepening of Red Hook Flats. The Corps has the authority to undertake this study under a congressional resolution adopted by the Senate Committee on Environment and Public Works on December 5, 1980. The States of New York and New Jersey support this project and expressed an interest to fund the non-federal share and are studying potential upland disposal sites. On behalf of Mrs. Lillian Borrone, Mr. Joseph Grossi and myself, we thank you for the courtesy of receiving our recommendations to the Committee. We will be pleased to try to answer any questions you may have.

Mr Chairman and Members of the Subcommittee, it is a pleasure to appear before you today on appropriations of great importance to New Jersey and our residents. I am Joseph T. Grossi, Executive Director of the New Jersey Department of Commerce and Economic Development's Maritime Advisory Council. Accompanying me today is Bernard J Moore, Administrator, Division of Engineering and Construction, of the State Department of Environmental Protection. We are here today to express our appreciation for past years' appropriations and to outline our recommendations for Fiscal Year 1997 funding of civil works projects of importance to New Jersey. Our requests total $86,005,000 and are necessary to advance and continue projects and provide for studies to develop solutions to the dredged material management predicament currently impacting port operations.

As the President's FY'97 proposed Budget had not as yet been released when this testimony was prepared, our requests are based upon last year's appropriations and current project schedules. Using the historical information available, we also developed funding requests for Operations and Maintenance projects. In past years, sufficient funding has been provided to continue the operation and maintenance of constructed projects critical to the safety of our residents and the strength of our state and regional economy.

The following projects summary will provide you with a clearer understanding of our state's unique needs. We ask that you carefully consider our requests for funding of these projects in FY'97. (Charts summarizing our recommendations are on pages 2 and 3 of this testimony.)

NAVIGATION

Arthur Kill Channel, Howland Hook Marine Terminal, NY and NJ (PE&D)

This project includes deepening the existing 35 ft channel to 41 ft. from its confluence with the Kill Van Kull Channel to the Howland Hook Marine Terminal in New York and the Tosco Oil Terminal in New Jersey. We wish to support the request by the Port Authority of New York and New Jersey that $1,000,000 be appropriated in FY'97 to complete the General Reconnaissance Report (GRR) and commence construction in FY'98.

Delaware River at Camden, NJ (O&M)

This project is located adjacent to the east channel edge of the Delaware River project at Camden Marine and Beckett Street Terminals in Camden, New Jersey. We wish to express our support for a Fiscal Year 1997 appropriation of $20,000 for this Operation and Maintenance channel conditions survey.

Delaware River, Philadelphia to the Sea, PA, NJ and DE (O&M)

The existing project provides for a nearly 100-mile channel from Camden, New Jersey and Philadelphia, Pennsylvania to deepwater in Delaware Bay, and six anchorage areas. Continued maintenance dredging throughout the project length is required We wish to request that $14,200,000 be included in the FY'97 budget for this critically important operation and maintenance channel project. Port facilities in three states benefit from this project.

Delaware River Main Channel, NJ, PA and DE (PE&D)

The project extends over 100 miles from deepwater in the Delaware Bay to the Ports of Philadelphia, Pennsylvania and Camden, New Jersey. Fiscal Year 1997 funds will be used to continue PE&D, environmental and economic studies and initiate preparation of the draft Design Memorandum. We wish to express support for an FY'97 appropriation of $160,000 to continue this PE&D effort.

Dredged Material Management Plan (O&M)

We wish to request an FY'97 appropriation of $6,000,000 to continue the much-needed studies of the Dredged Material Management Plan to provide solutions to the dredged material disposal crisis within the Port of New York/New Jersey.

Kill Van Kull and Newark Bay Channel, NY and NJ (Construction)

The present 40 ft. channel precludes modern ocean voyage container ships from full loading. Substantially increased shipping costs, if allowed to continue, will discourage fleets with larger draft vessels from utilizing these facilities. The Corps of Engineers is now developing the cost estimates for Phase II of the authorized project, the deepening of the channel to 45 feet. The Port Authority of New York and New Jersey is requesting $750,000 in FY'97 to complete the GRR for the next phase of this project. We wish to express our support for this request.

New Jersey Intracoastal Waterway, Dredged Material Environmental Restoration (Study)

We wish to request that $370,000 be appropriated in FY'97 for this new start reconnaissance study of beneficial uses for dredge material and wetlands restoration.

New York Harbor and Adjacent Channels, Claremont Channel, NJ (PE&D)

Claremont Channel is a non-federal channel with an average depth of 27 ft. While authorized for construction to a depth of 42 ft , the modified project will provide improved shipping economies with a 34 ft. deep channel. The principal users of the channel are scrap metal dealers exporting an average of 675,000 tons annually. We wish to request an FY'97 appropriation of $400,000 to complete the PE&D necessary to advance the construction phase of this improvement in FY'98 The state of New Jersey is presently evaluating potential upland disposal sites for the dredged material.

SUMMARY OF NEW JERSEY
FEDERAL CIVIL WORKS APPROPRIATIONS
FISCAL YEAR 1997

NAVIGATION

PROJECT	*PROJECT SPONSOR RECOMMENDATION*
ARTHUR KILL CHANNEL, HOWLAND HOOK MARINE TERMINAL, NY & NJ (PE&D)	1,000,000
DELAWARE RIVER MAIN CHANNEL, PA, NJ & DE (PE&D)	160,000
KILL VAN KULL & NEWARK BAY CHANNELS, NY & NJ (CONSTRUCTION)	750,000
NJ INTRACOASTAL WATERWAY, DREDGED MATERIAL ENVIRONMENTAL RESTORATION (STUDY)	370,000
NY HARBOR & ADJACENT CHANNELS, CLAREMONT CHANNEL, NJ (PE&D)	400,000
NY HARBOR & ADJACENT CHANNELS, PORT JERSEY CHANNEL, NJ (CONSTRUCTION)	500,000
NY HARBOR ANCHORAGE AREAS, NY & NJ (STUDY)	100,000
NY HARBOR & ADJACENT CHANNELS, RARITAN BAY ANCHORAGE, NY & NJ (STUDY)	100,000
NY HARBOR COLLECTION & REMOVAL OF DRIFT, NY & NJ (CONSTRUCTION)	100,000
W.R.D.A. 92, SECTION 405, SEDIMENTS DECONTAMINATION TECHNOLOGIES (STUDY)	3,000,000
CATEGORY SUBTOTAL	**$6,480,000**

FLOOD CONTROL/FLOOD DAMAGE PROTECTION

MILL BROOK, NJ (STUDY - CONTINUING AUTHORITY PROGRAM)	500,000
MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON, NJ (CONSTRUCTION)	7,500,000
NEWTON CREEK, NJ (STUDY - CONTINUING AUTHORITY PROGRAM)	560,000
POPLAR BROOK, NJ (STUDY - CONTINUING AUTHORITY PROGRAM)	300,000
RAMAPO RIVER AT OAKLAND, NJ (PE&D)	560,000
RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ (CONSTRUCTION)	3,000,000
RARITAN RIVER BASIN, SOUTH RIVER, NJ (STUDY)	275,000
STONY BROOK, PRINCETON, NJ (STUDY)	150,000
CATEGORY SUBTOTAL	**$12,845,000**

PLANNING ASSISTANCE

SECTION 22, P.L. 93-251 (STUDY)	300,000
CATEGORY SUBTOTAL	**$300,000**

SHORE PROTECTION/BEACH EROSION

BARNEGAT BAY, NJ (STUDY)	350,000
BARNEGAT INLET TO LITTLE EGG INLET, NJ (STUDY)	590,000
BRIGANTINE INLET TO GREAT EGG HARBOR, NJ (STUDY)	130,000
BRIGANTINE INLET TO GREAT EGG INLET - ABSECON ISLAND, NJ (PE&D)	950,000
CAPE MAY INLET TO LOWER TOWNSHIP, NJ (CONSTRUCTION)	2,000,000
DELAWARE BAY COASTLINE, DE & NJ (STUDY)	460,000
GREAT EGG HARBOR INLET & PECK BEACH, NJ (CONSTRUCTION)	380,000
GREAT EGG INLET TO TOWNSEND INLET, NJ (STUDY)	500,000
LOWER CAPE MAY MEADOWS, CAPE MAY POINT, NJ (STUDY)	230,000
MANASQUAN INLET TO BARNEGAT INLET, NJ (STUDY)	500,000
RARITAN BAY & SANDY HOOK BAY, NJ (STUDY)	500,000
RARITAN BAY & SANDY HOOK BAY, CLIFFWOOD BEACH, NJ (PE&D)	200,000
RARITAN BAY & SANDY HOOK BAY, NJ, SECTION 934 (STUDY)	350,000
SANDY HOOK TO BARNEGAT INLET, NJ (CONSTRUCTION)	21,000,000
TOWNSEND INLET TO CAPE MAY INLET, NJ (PE&D)	500,000
TOWNSEND INLET TO CAPE MAY INLET, NJ (STUDY)	45,000
CATEGORY SUBTOTAL	**$28,685,000**

OPERATION AND MAINTENANCE

PROJECT	*PROJECT SPONSOR RECOMMENDATION*
BARNEGAT INLET, NJ (NAVIGATION)	1,300,000
CHEESEQUAKE CREEK, NJ (NAVIGATION)	430,000
COLD SPRING INLET, NJ (SHORE PROTECTION)	500,000
DELAWARE RIVER AT CAMDEN, NJ (NAVIGATION)	20,000
DELAWARE RIVER, PHILADELPHIA TO THE SEA, NJ, PA & DE (NAVIGATION)	14,200,000
DELAWARE RIVER, PHILADELPHIA, PA TO TRENTON, NJ (NAVIGATION)	1,500,000
DREDGED MATERIAL MANAGEMENT PLAN, NJ & NY	6,000,000
MANASQUAN INLET, NJ (NAVIGATION)	2,300,000
NJ INTRACOASTAL WATERWAY, NJ (NAVIGATION)	2,100,000
NEW YORK & NEW JERSEY CHANNELS, NJ (NAVIGATION)	1,750,000
NEW YORK-NEW JERSEY HARBOR CONDITION SURVEYS	700,000
NEW YORK HARBOR DRIFT REMOVAL, NY & NJ (NAVIGATION)	4,275,000
PROMPTON LAKE, PA (FLOOD CONTROL)	600,000
SHARK RIVER, NJ (NAVIGATION)	400,000
TUCKERTON CREEK, NJ (NAVIGATION)	800,000
FRANCIS E. WALTER DAM, PA (FLOOD CONTROL)	820,000
CATEGORY SUBTOTAL	**$37,695,000**

GRAND TOTAL	**$86,005,000**

NAVIGATION (Continued)

New York Harbor and Adjacent Channels, Port Jersey Channel, NJ (Construction)

The Port Jersey Channel serves 15 shipping lines at the Global Marine Terminal. Annually, this facility handles 400 vessel arrivals. As a privately-owned terminal, Global pays nearly $4 million in federal, State and local taxes annually. Federal, State and local interests are working with the Corps to address disposal issues on a harbor-wide basis. Therefore, we support a federal appropriation of $500,00 for this project. The State of New Jersey is evaluating potential upland disposal sites for the dredged material.

New York Harbor Anchorage Areas, NY and NJ (Study)

The Corps of Engineers was authorized to undertake this study under a Congressional resolution adopted on December 5, 1980. This project will help to provide safe navigation and maintain our bi-state port's productivity by being able to accommodate today's larger class of vessels. We wish to request that $100,000 be appropriated in FY'97 to advance the feasibility study phase of this project.

New York Harbor and Adjacent Channels, Raritan Bay Anchorage Areas, NY and NJ (Study)

The reconnaissance effort completed in March 1994 revealed and recommended favorable improvements for the Perth Amboy Anchorage. As this project will help to provide safe navigation, and accommodate vessels awaiting movement to shore-based facilities, we wish to request that $100,000 be appropriated in FY'97 to commence the feasibility study phase of this project.

New York Harbor Collection and Removal of Drift, NY and NY (Construction)

This project consists of the demolition and disposal of derelict vessels, debris along the shores and unoccupied deteriorated shore structures throughout the Port to reduce hazards to navigation by removing potential sources of drift. This project is supported by New York and New Jersey, and we wish to request an FY'97 appropriation of $100,000 to continue this effort.

W.R.D.A. of 1992, Section 405, Sediments Decontamination Technologies (Study)

The Water Resources Development Act of 1992 authorized $5 million for exploring methods of sediment decontamination and its practical use in managing dredged materials. This Corps and EPA effort has investigated a number of promising technologies, all of which require additional study. Continuation of this demonstration project is essential to channel maintenance and can serve as a model for use throughout the country. Port and regional environmental organizations are working together to promote this project. We request that $3 million be appropriated to continue this vital program.

FLOOD CONTROL/FLOOD DAMAGE PROTECTION

Mill Brook, NJ (Study - Continuing Authority Program)
Newton Creek, NJ (Study - Continuing Authority Program)
Poplar Brook, NJ (Study - Continuing Authority Program)

These three flood control projects are within the Continuing Authority Program (CAP). Under this program, these small projects can progress through the study phase right into construction. For Mill Brook, we wish to request an FY'97 appropriation of $500,000 to continue this study and prepare plans and specifications. For Newton Creek, we wish to request an FY'97 appropriation of $560,000 to continue the study phase and enter into plans and specifications. For Poplar Brook, we wish to request an FY'97 appropriation of $300,000 to complete the study phase. State funds are available to support these projects.

Molly Ann's Brook, NJ (Construction)

Major flooding in recent years has adversely affected about 520 residential, commercial and industrial establishments in the 100-year flood plain. This project is authorized for construction under the W.R.D.A. of 1986. We wish to request an FY'97 Budget appropriation of $7,500,000 to continue the construction phase of this project.

Ramapo River at Oakland, NJ (PE&D)

The recommended plan for this study area includes dam modifications designed to reduce flood elevations and provide protection to 300 residences. We wish to request an FY'97 appropriation of $560,000 to advance the PE&D phase of this project.

Raritan River Basin, Green Brook Sub-basin, NJ (Construction)

The Green Brook Sub-basin study area drains 65 square miles of urban, suburban and industrialized area. In 1971, Hurricane Doria caused more than $22 million in damage, while another major storm in 1973 contributed to six deaths and over $25 million in damages. This project is needed to prevent loss of life and property, and we wish to request an appropriation for this project in FY'97 of $3,000,000 to continue the current study phase and begin to prepare plans and specifications for an FY'98 construction start

Raritan River Basin, South River, NJ (Study)

Recent storms have caused extensive damage to residential and commercial properties in Sayreville and South River, New Jersey The December 1992 storm caused damages of $6,100,000 in the Basin. We request that $275,000 be appropriated in FY'97 to continue the feasibility phase of this project.

Stony Brook, Princeton, NJ (Study)

This project, which was authorized by Section 729 of the Water Resources Development Act of 1986, is a multi-purpose storm damage reduction, ecological restoration and water quality general investigation We wish to request an FY'97 appropriation of $150,000 to initiate a new start reconnaissance study of this area.

PLANNING ASSISTANCE

Section 22, P.L. 93-251, Study, NJ (Study)

This project provides planning assistance to states to perform engineering evaluations of water resources problems. There are several planning projects for which we wish to request funds in FY'96 through this program. The funds requested for these proposed studies are $ 300,000 and the State of New Jersey is prepared to financially participate.

SHORE PROTECTION/BEACH EROSION

Barnegat Bay, NJ (Study)

This study will study existing beach erosion/flood control issues in Barnegat Bay. We wish to request an FY'97 appropriation of $350,000 for a new start feasibility study of this project.

Barnegat Inlet to Little Egg Harbor, NJ (Study)

This study will review the existing beach erosion/flood control projects to determine modifications necessary to provide protection The funds requested for Fiscal Year 1997 will be used to continue the feasibility phase The State of New Jersey wishes to request that $590,000 be appropriated for this project in Fiscal Year 1997. The Department of Environmental Protection has indicated their intent to cost share this study.

Brigantine Inlet to Great Egg Harbor

This study area covers 15 miles of coastline. The reconnaissance report found more detailed study of shore protection was warranted for the purpose of storm damage reduction. We wish to request an FY'97 appropriation of $130,000 to continue this feasibility study

Brigantine Inlet to Great Egg Inlet - Absecon Island, NJ (PE&D)

As part of the above 15-mile coastline study area, the feasibility study for this stage of the project was completed with FY'96 funding We wish to request an FY'97 appropriation of $950,000 to commence the PE&D phase of this effort

Cape May Inlet to Lower Township, NJ (Construction)

Construction of this project was completed in June 1991. Periodic nourishment again took place in January 1993. The next phase of this project calls for additional beachfill and shoreline monitoring We wish to request an FY'97 appropriation of $2,000,000 for continuing construction of this project.

Delaware Bay Coastline, NJ & DE (Study)

The goal of this study is to provide information on the long-term shoreline changes which will serve as a basis for sound coastal planning. We wish to support an appropriation of $460,000 in FY'97 to continue the feasibility study phase of this project

Great Egg Harbor Inlet and Peck Beach, NJ (Construction)

This multiple purpose flood control, shore protection and navigation improvement provides for the modification of an existing beach erosion project We wish to request an FY'97 appropriation of $380,000 which will provide funds necessary for the periodic monitoring and nourishment of this improvement.

Great Egg Inlet to Townsend Inlet, NJ (Study)

The purpose of this study is to investigate shore protection, flood control and water quality problems attributed to natural and man-made conditions FY'96 funds were used to complete the reconnaissance report. We wish to request an FY'97 appropriation of $500,000 to commence the next phase of this project, the feasibility study.

Lower Cape May Meadows, Cape May Point, NJ (Study)

This study addresses restoration and protection of fish and wildlife habitat, and hurricane and storm damage prevention throughout the entire study area. We wish to request an FY'97 appropriation of $230,000 to continue the feasibility study phase of this project

Manasquan Inlet to Barnegat Inlet, NJ (Study)

These studies are to investigate shore protection/flood control and water quality problems and to determine the effects of those conditions on the coastal environment Fiscal Year 1996 funds were used to complete the reconnaissance report We wish to request an FY'97 appropriation of $500,000 to commence the feasibility study phase of this project.

Raritan Bay and Sandy Hook Bay, NJ (Study)

This storm damage protection study is beneficial to coastal Bayshore communities not presently protected from storm inundation, wave attack and coastal erosion. We wish to request an FY'97 appropriation of $500,000 for the reconnaissance study phase for Union Beach.

Raritan Bay and Sandy Hook Bay, Cliffwood Beach, NJ (PE&D)

The authorized project calls for shore protection with beachfill to correct tidal flooding and beach erosion which threatens nearby residential areas We wish to request an FY'97 appropriation of $200,000, of which $50,000 will be used to complete the reconnaissance study and $150,000 will allow for the feasibility phase of the project to begin.

Raritan Bay and Sandy Hook Bay, NJ, Section 934 (Study)

Section 934 of W R D A 1986 grants the Corps the authority to study completed beach nourishment projects for a period of up to 50 years to determine if additional improvements are required We wish to request an FY'97 appropriation of $350,000 to complete the feasibility study and advance this project into the PE&D phase

Sandy Hook to Barnegat Inlet, NJ (Construction)

Erosion and storms have seriously reduced the width of most beaches in the study area with exposure of the shore to storm damage The State of New Jersey has stated its support for this project and we wish to request an FY'97 appropriation of $21,000,000 for this project This funding will continue the construction phase of this improvement

Townsend Inlet to Cape May Inlet, NJ (Study) (PE&D)
This study area is a 12-mile portion of the South Jersey coastline. The purpose of the study is to investigate shore protection/flood control and water quality problems attributed to natural and man-made conditions. We wish to request an FY'97 appropriation of $500,000 to commence the PE&D phase of the project and $45,000 to continue the feasibility study phase

OPERATION AND MAINTENANCE

Under the category of Operation and Maintenance, we wish to request an FY'97 appropriation of $37,695,000 for 16 civil works projects which impact New Jersey and our regional area. These projects are critical to the competitiveness of our ports, tourism industry, water supply, flood control and the safety of our citizens.

Mr Chairman, we appreciate the past support of this subcommittee and ask you to carefully consider the requests made for funding in FY'97. These requests have been made with a special eye toward the most efficient use of both Federal and State funds In closing, on half of New Jersey I wish to thank you for the opportunity to appear before this Subcommittee

PREPARED STATEMENT OF HON. VERNON A. NOBLE, CHAIRMAN, GREEN BROOK FLOOD CONTROL COMMISSION

Mr. Chairman and Members of the Subcommittee:

My name is Vernon A. Noble, and I am the Chairman of the Green Brook Flood Control Commission. I am here before you today in support of the Raritan River Basin - Green Brook Sub-Basin project, which we request be budgeted in FY 1997 for $3,000,000 for preconstruction engineering and design funds.

The Commission was established in 1971, pursuant to an Act of the New Jersey Legislature, following disastrous flooding which took place in the Green Brook Basin in the late Summer of 1971. That flood caused $72,000,000 in damages and disrupted the lives of thousands of persons.

In the late Summer of 1973, another very severe storm struck the area, and once again thousands of persons were displaced from their homes. $75,000,000 damage was done and six persons lost their lives.

Thanks to the efforts of New Jersey's Representatives and Senators in Congress, the Corps of Engineers was authorized by Congress in 1986 to design a solution to this problem of flooding. The floods of 1971 and 1973 were only the most recent in a long series of severe floods. Flooding in this Sub-Basin dates back to the late 1800's when they were first recorded, and has become more damaging as the population of the area has grown.

The Green Brook Flood Control Commission is made up of appointed representatives from Middlesex, Somerset and Union Counties in New Jersey, and from the 13 municipalities within the Basin. This represents a combined population of almost one-quarter of a million (248,084) people.

The Members of the Commission are all volunteers, and for 25 years have served, without pay, to advance the cause of flood protection for the Basin. Throughout this time, the Corps of Engineers, New York District, has kept us informed of the progress of the project, and a representative from the Corps has been a regular part of our monthly public meetings.

Thanks to the vigorous support of New Jersey's Congressional Delegation, the Congress in 1986 authorized a comprehensive flood control project for the protection of the entire Green Brook Basin at a then established estimated cost, in 1985 dollars, of $203,000.000

In 1987, Congress adopted Legislation which included a provision making it clear to the Corps of Engineers that protection is to be designed for the entire Green Brook Basin, rather than only the lower portion of the Basin, as had one time been studied by the Corps of Engineers.

We believe that it is essential that the Green Brook Flood Control Project be carried forward, and pursued vigorously to achieve protection at the earliest possible date. This project is needed to prevent loss of life and property, as well as the trauma caused every time there is a heavy storm. We urgently request an appropriation for the project in FY 1997 of $3,000,000.

New Jersey has strongly reaffirmed its support for the project to provide full protection for all of the people of the Basin. In January 1992, the New Jersey Legislature passed a Bill, which was signed by the Governor, establishing a program to plan for the non-Federal share for this and other water resources related projects. New Jersey has programmed budget money for its share of the project for FY 1997.

The more quickly the design of this project is completed, the less will be the total cost, and the sooner the project can go to construction.

Economics and costs are of course important, but personal human tragedy, and the loss of life, is more important.

We note that during the past 12 months the work of the New York District of the Corps of Engineers has continued to accelerate, and we are gratified with this progress. Nevertheless, the progress, we believe, can and should be further accelerated.

As the project progresses towards the start of construction in FY98, plans for protection and presentation of wetlands are being refined.

The Corps of Engineers and the New Jersey Department of Environmental Protection are using the special knowledge of the U.S. Fish and Wildlife Service to help in developing plans to reclaim old natural wetlands, now sadly degraded as a result of old industrial operations. Such degraded, and in some cases, entirely unproductive natural former wetlands, exist in a number of places in the Green Brook Basin, particularly in the Dismal Swamp in Edison and South Plainfield, as well as along the Bound Brook in South Plainfield and Piscataway.

The plans now being fine-tuned contemplate a restoration of the best candidate sites in these former wetlands so that their value as wildlife habitat will be made approximately one and one half times as valuable as the wetlands along other portions of the waterways which will necessarily be impacted by the need for protective levees to keep floodwaters out of people's houses.

We urgently request that the Congress provide an appropriation of $3,000,000 for the Green Brook Flood Control Project in FY 1997.

Thank you, Mr. Chairman, and Members of the Subcommittee, for the opportunity to present this testimony to you today.

DELEGATION LIST

The Hon. Vernon A. Noble, Chairman, Green Brook Flood Control Commission and former Surrogate Judge of Somerset County, Green Brook, New Jersey

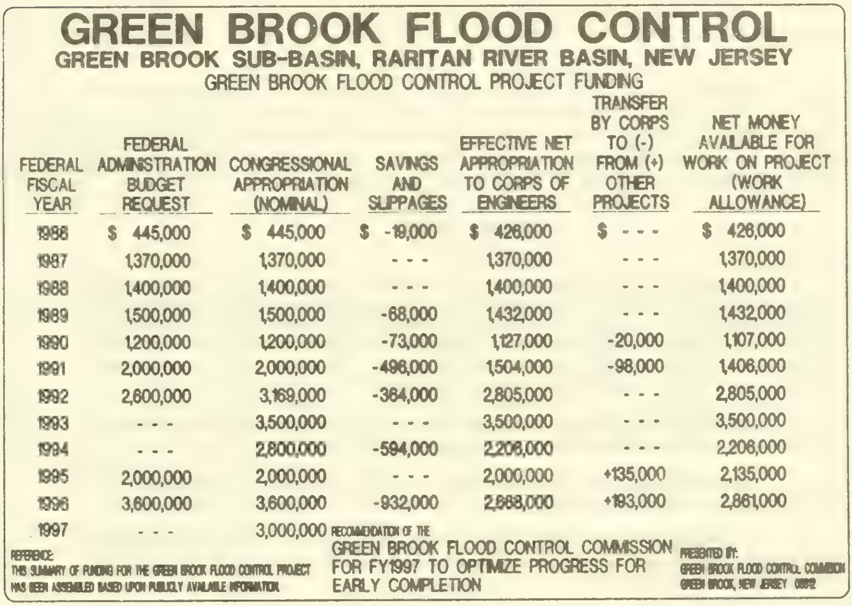
The Hon. B. Lawrence Newcomb, Vice Chairman, Green Brook Flood Control Commission, and former Mayor of Scotch Plains, New Jersey

The Hon. Francis J. McArdle, Chairman of the Legislative Committee of the Green Brook Flood Control Commission and former Mayor of North Plainfield Borough, North Plainfield, New Jersey

The Hon. Francis M. Meeks III, Treasurer, Green Brook Flood Control Commission and former Member of the City Council of Plainfield, Plainfield, New Jersey, and presently Commissioner of the Union County Board of Taxation, Plainfield, New Jersey

Mr. Joseph J. Debler, Commissioner, Green Brook Flood Control Commission, Retired Environmental Biologist, Former Member of the Piscataway Environmental Adivsory Commission, and Representative from the Township of Piscataway

J.B. Wiley, Jr., P.E., P.P., Planning Consultant to the Green Brook Flood Control Commission, Far Hills, New Jersey



GREEN BROOK FLOOD CONTROL

GREEN BROOK SUB-BASIN, RARITAN RIVER BASIN, NEW JERSEY

GREEN BROOK FLOOD CONTROL PROJECT FUNDING

FEDERAL FISCAL YEAR	FEDERAL ADMINISTRATION BUDGET REQUEST	CONGRESSIONAL APPROPRIATION (NOMINAL)	SAVINGS AND SLIPPAGES	EFFECTIVE NET APPROPRIATION TO CORPS OF ENGINEERS	TRANSFER BY CORPS TO (-) FROM (+) OTHER PROJECTS	NET MONEY AVAILABLE FOR WORK ON PROJECT (WORK ALLOWANCE)
1986	$ 445,000	$ 445,000	$ -19,000	$ 426,000	$ - - -	$ 426,000
1987	1,370,000	1,370,000	- - -	1,370,000	- - -	1,370,000
1988	1,400,000	1,400,000	- - -	1,400,000	- - -	1,400,000
1989	1,500,000	1,500,000	-68,000	1,432,000	- - -	1,432,000
1990	1,200,000	1,200,000	-73,000	1,127,000	-20,000	1,107,000
1991	2,000,000	2,000,000	-496,000	1,504,000	-98,000	1,406,000
1992	2,600,000	3,169,000	-364,000	2,805,000	- - -	2,805,000
1993	- - -	3,500,000	- - -	3,500,000	- - -	3,500,000
1994	- - -	2,800,000	-594,000	2,206,000	- - -	2,206,000
1995	2,000,000	2,000,000	- - -	2,000,000	+135,000	2,135,000
1996	3,600,000	3,600,000	-932,000	2,668,000	+193,000	2,861,000
1997	- - -	3,000,000				

RECOMMENDATION OF THE GREEN BROOK FLOOD CONTROL COMMISSION FOR FY1997 TO OPTIMIZE PROGRESS FOR EARLY COMPLETION

REFERENCE:
THIS SUMMARY OF FUNDING FOR THE GREEN BROOK FLOOD CONTROL PROJECT HAS BEEN ASSEMBLED BASED UPON PUBLICLY AVAILABLE INFORMATION

PRESENTED BY:
GREEN BROOK FLOOD CONTROL COMMISSION
GREEN BROOK, NEW JERSEY 08812

LETTER FROM BARBARA RIEPE, TOWNSHIP CLERK, TOWNSHIP OF SCOTCH PLAINS

February 15, 1996

Vernon A. Noble, Chairman
Green Brook Flood Control Commission

Robert C. Shinn, Jr., Commissioner
Department of Environmental Protection

Gary Thomas, District Engineer of the
New York District, U.S. Army Corps of Engineers

Honorable Bob Franks, Congressman

Gentlemen:

Enclosed find certified copy of a resolution adopted on February 13th, 1996 expressing the support and concurrence with the RECOMMENDED PLAN REPORT dated August 1995 prepared by the New York District, U.S. Army Corps of Engineers and the Green Brook Flood Control Commission's findings regarding the Green Brook Sub-basin.

RESOLUTION

WHEREAS, the system of water courses throughout the Green Brook Sub-basin of the Raritan River Basin carries away storm water from the municipalities of Dunellen, Edison, Middlesex, Piscataway and South Plainfield in Middlesex County; from the municipalities of Bound Brook, Bridgewater, Green Brook, North Plainfield, Warren and Watchung in Somerset County; and from the municipalities of Berkeley Heights, Plainfield and Scotch Plains in Union County; and

WHEREAS, the natural topography of the Green Brook Sub-basin brings out severe flooding conditions when there is unusual heavy rainfall; and

WHEREAS, such severe flooding has occurred on many occasions, with major floods recorded in the late 1800's, 1902, 1903, 1916, 1938, 1971 and 1973; and

WHEREAS, such major floods cause many millions of dollars of damage, vast human suffering and can cause loss of life, as tragically happened to six persons in the flood of August 1973; and

WHEREAS, until flood protection is in place, such flooding will inevitably occur again as it has in the past, and will again cause great human suffering, vast property damage and will continue to threaten the loss of life; and

WHEREAS, as a result of the efforts of the counties of Middlesex, Somerset and Union and the municipalities in the Green Brook Sub-basin, acting through the Green Brook Flood Control Commission which they created, Congress in 1986 authorized the U.S. Army Corps of Engineers to construct a project which will provide flood protection throughout the entire Green Brook Sub-basin; and

WHEREAS, the RECOMMENDED PLAN REPORT contains the following features:

A. Two dry detention basins with limited channel modification along Green Brook in the upper portion of the Green Brook Sub-basin to provide flood protection within the municipalities of North Plainfield and Watchung in Somerset County and the municipalities of Berkeley Heights, Fanwood, Plainfield and Scotch Plains in Union County;

B. A combination of levees, floodwalls and flood proofing measures in the lower portion of the Green Brook Sub-basin to provide flood protection within the municipalities of Dunellen, Middlesex, Piscataway and South Plainfield in Middlesex County and the municipalities of Bound Brook, Bridgewater, Green Brook and North Plainfield in Somerset County and the municipality of Plainfield in Union County;

C. Limited channel modification along the Stony Brook portion of the Green Brook Sub-basin to provide flood protection within the municipality of North Plainfield in Somerset County; and

WHEREAS, the State of New Jersey Department of Environmental Protection, in a letter dated September 13, 1995, endorsed the plan as outlined in the August 1995 RECOMMENDED PLAN REPORT as the locally preferred plan and concurred with the preliminary cost estimate of $104 million as the non-federal share of the project; and

WHEREAS, no payment towards the non-federal share (including reimbursement for the non-federal share of preconstruction engineering and design) will be due until just prior to construction and only after execution of a Project Cooperation Agreement between the State of New Jersey and the U.S. Army Corps of Engineers; and

WHEREAS, the Green Brook Flood Control Commission, after study and consideration, has expressed its support and concurrence with the RECOMMENDED PLAN REPORT by the adoption of a Resolution at its meeting held October 4, 1995; and

WHEREAS, the Township Council of the Township of Scotch Plains has considered the findings of the Green Brook Flood Control Commission and the conclusions of the RECOMMENDED PLAN REPORT and supports the action of the Green Brook Flood Control Commission in its concurrence with the RECOMMENDED PLAN REPORT and wishes to support the Commission's position and the determination of the Commission that continued progress on the Green Brook Flood Control Project be carried out in the most expeditious practicable manner.

NOW, THEREFORE, BE IT RESOLVED that the Township Council of the Township of Scotch Plains expresses its support and concurrence with the RECOMMENDED PLAN REPORT dated August 1995 prepared by the New York District, U.S. Army Corps of Engineers, and urges that continued progress on the project be carried out in the most expeditious practicable manner; and

BE IT FURTHER RESOLVED that a copy of this Resolution be directed to the Chairman of the Green Brook Flood Control Commission, to the Commissioner of the New Jersey Department of Environmental Protection, to the District Engineer of the New York District, U.S. Army Corps of Engineers, and to the members of the United State Congress representing this Municipality.

Dated: February 13, 1996

TOWNSHIP OF SCOTCH PLAINS

Barbara Riepe

Barbara Riepe, Township Clerk

This is to certify the within resolution
is a true and exact copy of a resolution
adopted on February 13, 1996 by the
Township Council of the Township of
Scotch Plains.

Barbara Riepe

Barbara Riepe, Township Clerk

Green Brook Flood Control Commission

Status of
RESOLUTIONS
Concerning
GREEN BROOK FLOOD CONTROL PROJECT

	SUBJECT MATTER OF RESOLUTION				
Record of Date of Adoption by Resolution of: A	First construction element must include protection for Bound Brook and for Western portion of Middlesex Borough B	Endorsement and support of Corps August 1995 Recommended Plan Report C	Endorsement and support of Corps August 1995 Recommended Plan Report with language recognizing extent of protection and of non-Federal share of cost D		
Green Brook Flood Control Commission	2/1/95	10/4/95			
MIDDLESEX COUNTY					
County Plan Board	2/14/95[1]				
Freeholders					
Dunellen	3/20/95[2]		2/22/96.		
Middlesex Borough	10/10/95[3]		2/27/96		
Piscataway	11/21/95[5]		11/21/95[5]		
South Plainfield					
SOMERSET COUNTY					
Freeholders			12/22/95[6]		
Bound Brook	3/14/95[2]		10/10/95[4], 1/16/96[7]		
Bridgewater	3/6/95[2]		11/20/95[2]		
Green Brook	3/9/95[2]		2/5/96[7]		
North Plainfield	3/13/95[2]		1/24/96[6]		
Warren	9/7/95[2]				
Watchung	3/23/95[2]		12/14/95[2]		
UNION COUNTY					
Freeholders			12/7/95[7]		
Berkeley Heights		See Note 8			
Plainfield			2/26/96		
Scotch Plains	3/15/95		2/13/96[7]		

Notes:

1. A different text; urges continued Federal funding, continued participation by Corps, mentions design and construction in stages, with first construction 1998.
2. These resolutions have somewhat different whereas clauses; but have same resolved.
3. Middlesex Borough resolution is a different text, and supports flood proofing of houses on Prospect Place as part of first construction element.
4. Resolution includes detailed description of planned construction in Bound Brook Borough.
5. Combined support for first construction element and for Recommended Plan Report.
6. Resolution adds the phrase - "subject to funding" in first resolved.
7. Text of Resolution is as suggested by Commission.
8. In a Resolution adopted 12/28/95, the Township Committee of Berkeley Heights expressed its total opposition to construction of two detentio Berkeley Heights (Sky Top and Oakway, each of which would straddle the brooks which form the Township Boundary in that vicinity).

LOWER MISSISSIPPI RIVER WATER RESOURCE DEVELOPMENT PROJECTS

PREPARED STATEMENT OF DAVID SOLOMON, PRESIDENT, WHITE RIVER DRAINAGE DISTRICT OF PHILLIPS AND DESHA COUNTIES, ARKANSAS

Mr. Chairman and distinguished Members of the Committee, my name is David Solomon and my home is in Helena, Arkansas. I am the President of White River Drainage District of Phillips and Desha Counties, Arkansas, and I also serve as a Member of the Executive Committee of the Lower Mississippi Valley Flood Control Association and I appear here as spokesman for that Association to present their views on the Fiscal Year 1997 Budget for the Mississippi River and Tributaries Project.

The Lower Mississippi Valley Flood Control Association represents practically all of the levee and drainage districts, municipalities, port and harbor commissions and other state agencies in the Lower Mississippi Valley, extending from the vicinity of Hannibal, Missouri to the Gulf of Mexico. These Organizations and Agencies are political subdivisions of the various States in which they are organized and function: The States of Illinois, Missouri, Kentucky, Tennessee, Mississippi, Arkansas and Louisiana. We have appeared before this Committee for well over sixty years in order to provide the Congress with data to justify adequate Appropriations to complete the Mississippi River and Tributaries project as quickly as possible. Briefly stated we are the Agency that provides the means for all the people of our great Valley to speak and act jointly on all flood control, bank stabilization, navigation and major drainage problems.

The Lower Mississippi Valley Flood Control Association was first organized in 1922. Our 130 member organizations include levee boards, drainage districts, port authorities, harbor commissions, state agencies, municipalities and also just individuals that share our problems and concerns. Those problems address themselves to flood control, navigation, channel improvements and major drainage in the seven states of the alluvial valley of the Lower Mississippi River and I think more importantly our concerns are for the welfare and prosperity of this great nation of ours.

Our Association is comprised of a very large group of individuals who are businessmen, property owners, conservationists, farmers, attorneys, doctors, wildlife enthusiasts, engineers, accountants, environmentalists, civil servants and elected officials from all political parties.

Our Objectives simply stated are:

To seek Congressional authorization for, and adequate annual appropriations for the early completion of all flood control projects necessary for the protection of the Lower Mississippi Valley against the maximum probable flood.

To secure prompt initiation of, and early completion of existing projects for the stabilization of the banks of the Lower Mississippi River, in order to assure the integrity of the Main River Levee System; to provide increased flood discharge capacity, permanency of location for harbor facilities and industrial sites, and to obtain deeper and more reliable navigation channels.

To support channel and major drainage improvements throughout the Lower Mississippi Valley to provide protection against headwater flooding, and to provide adequate outlets for local and state drainage projects.

To cooperate in every proper way with the Department of the Army, the Chief of Engineers of the United States Army, the Mississippi

River Commission and other agencies to hasten the accomplishment of flood control in the Mississippi Valley.

We come before you again this year in support of the Mississippi River and Tributaries Project which was established by the Flood Control Act of 1928.

Our Executive Committee is composed of business and professional men representing each of the seven states within the Valley. They are men of wide experience in business, professional and civic life. They are mature in their judgment and responsible in their actions. It, therefore, has been no easy task for that Committee to arrive at an asking figure based on urgent needs and yet tempered in the light of the grave fiscal problems which face the Federal Government. I say these things to emphasize that our asking was not arrived at by whim and fancy.

For over sixty years the Executive Committee of the Lower Mississippi Valley Flood Control Association has closely examined the budget as submitted for the Mississippi River and Tributaries Project prior to testifying before this Sub-Committee. This year marks the first time in that span of years that we have come before you without knowledge of what will be included in the budget for Fiscal Year 1997.

Mr. Chairman even though we cannot discuss specific numbers for the Mississippi River and Tributaries Project today we do have serious problems that relate to both our project and this Nation as a whole that we feel must be discussed.

We are deeply appreciative of this opportunity to appear before this Sub-Committee today. We are a month earlier than our normal schedule but as you can see we have our usual large crowd with us representing all seven states of the Lower Mississippi Valley.

Now let me return to a brief discussion of the problems I mentioned earlier. Mr. Chairman I do promise to recommend some dollar amounts that we hope will be used when this committee initiates its discussions on the Fiscal Year 1997 appropriations.

Last year we discussed with you the serious problem that the Corps of Engineers had experienced with their inability of expending the funds appropriated to them for at least two years.

We as the local sponsor and partner of the Corps of Engineers felt that at least part of the blame for that problem could be attributed to the Corps' recent movement away from the things they do best and have done so well for so long and that's flood control and navigation and more recently environmental enhancement. It was apparent to us that the Corps was directing their energies and resources to things best left to others, such things as recreation, floodplain management and regulation of private property rights. We know that part of the blame still lies with the inability of the local people to pay for the new and additional cost-sharing that has been imposed on much needed, justified, authorized and funded flood control projects since 1986. We still do not have the proper solution to the Ability-to-Pay provision that Congress continues to request. Therefore numerous projects are not being implemented as directed by the Congress simply because the local interests do not have the money.

The Corps of Engineers this past fiscal year did what they always have done. They recognized the problem and they rectified it. Maybe too well!

Today the Corps is faced with a shortfall of funds in all categories and projects. We are, of course, principally concerned with the Mississippi River and Tributaries project where the total shortfall amounts to over 33 million dollars. This shortfall has created serious program execution problems for this year with new contract awards being frozen and a strong possibility of shut-downs of on-going work. Unless the Congress increases appropriations in fiscal 1997 and beyond, these funding problems will continue and the Mississippi River and Tributaries project will be jeopardized.

One of the reasons for this shortfall of funds is the large, unexpected need to divert Civil Works funds for natural disaster recovery in several parts of the United States. Had the dictates of the Congress been followed more closely in years past and a Federal flood control system been in place then much of the funds used for relief and recovery would not have been necessary.

It is a proven fact that flood control improvements, while apparently costly at the outset, are a Federal interest without regard to state or local boundaries; are essential to the health and welfare of our nation; and they pay for themselves many times over in prevention of loss of life and property damage. For every $1.00 invested more than $10.00 of flood damage has been prevented. That's a wonderful investment.

We still firmly believe that the citizens of this great Nation are entitled to the best protection from floods our Nation is capable of devising. We would respectfully request that this Committee consider that during its deliberations of the Corps of Engineer's Fiscal Year 1997 Appropriations.

Each one of us realizes only too well that the financial situation of our great Nation needs to be improved and each of us knows that our government's involvement in proven flood control and navigation projects is an investment in the future and must be continued.

Again we urge the Congress to prevent the encroachment by the Executive Branch upon their policy-making powers. We call attention to the fact that the National Water Resource Development Program has historically been operated upon policies legislated by the Congress and that its significant achievements have been accomplished under this procedure. From bitter experience we have learned that the control of floods cannot be successfully prosecuted under the ground rules which are currently advocated by the Office of Management and Budget. Flood waters do not recognize partnership arrangements, state lines or political subdivision. We hope that Congress will re-assert its dominance in the field of water resource development.

Mr. Chairman I promised earlier that we would recommend some dollar amounts for the Mississippi River and Tributaries project that we hope will be used by the Committee during its future deliberations. For many years we have expressed our conviction that an annual appropriation of 400 million dollars was needed in order to complete our project in the most economically feasible time frame and assure the earliest realization of the benefits.

Today, we are all aware of the fiscal problems facing the Nation and we endorse, in principle, the effort to economize and improve our financial picture but we cannot agree that these objectives can best be accomplished by ignoring the economic lifeblood of our own people and unnecessarily risking our lives and property.

With all these facts well known, we request that this Committee appropriate for the Mississippi River and Tributaries project in Fiscal Year 1997 an amount no less than 350 million dollars.

Mr. Chairman, I wish to express for this entire Association our sincere appreciation for the many courtesies and the time this subcommittee has given us today and all the past years, and we express the hope that for the health and welfare of the great people of this wonderful Nation that we never give up the fight to improve our water resources. To do so would be unthinkable.

With your permission I would like to present our other witness, Mr. Curtis Patterson from Louisiana.

PREPARED STATEMENT OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT—FLOOD CONTROL, NAVIGATION, HURRICANE PROTECTION AND WATER RESOURCES PROJECTS

The Louisiana Department of Transportation and Development, Public Works and Flood Control Directorate, is the agency designated to represent the State of Louisiana for the coordinated planning and development of water resources, including flood control, navigation, drainage, water conservation and irrigation projects: therefore, this statement is presented on behalf of the State of Louisiana. We are pleased to present the recommendations for Fiscal Year 1997 appropriations for Louisiana projects. The projects listed herein are separate from those in the statement by the Public Works and Flood Control Directorate on the Mississippi River and Tributaries Project.

The effect of the Administration's water development policy changes which were rejected by Congress last year are still being felt across the country. We have relied on the U.S. Army Corps of Engineers to assist us with flood control and navigation for the collective good of the country. The system approach developed by the Corps for flood control and navigation is working. River systems do not recognize political boundaries. Weather systems do not recognize political boundaries. We have many projects underway with the Crops but we are concerned that these commitments may be voided. Reducing the Corps' responsibility in these matters after commitments have been made by previous congresses is tantamount to unfunded mandates and will affect the State of Louisiana and the Nation negatively. We offer the following as support of our cause.

Louisiana contains the terminus of the Mississippi River, which has the third largest drainage basin in the world, exceeded only by the watersheds of the Amazon and the Congo Rivers. The Mississippi drains 41 percent, or 1 1/4 million square miles, of the contiguous United States and parts of two Canadian provinces. In addition to the Mississippi River system, Louisiana contends with other interstate waters - the Sabine on the western border, the Red River from four other states, the Ouachita River in the north central area flowing down from Arkansas, the Amite River in southeast area flowing down from Mississippi, and the Pearl River on its extreme eastern border with Mississippi. All of these systems converge towards Louisiana, passing on to the Gulf of Mexico, draining a figure approach 50% of these contiguous 48 states.

Louisiana also plays a strategic part in providing the country with access to world markets through an inland navigation system that funnels through Louisiana. Approximately 75% of all soybeans, animal feed, and corn grown in the U.S. are shipped through Louisiana. And almost 50% of all rice and cereals. Louisiana has the highest waterborne traffic by state? The petrochemical industry depends almost totally on the Federally constructed levee system and the maintained navigation depths of the river. The river flood control systems work in conjunction with the hurricane and coastal protection systems to form a total integrated protection system from floods of all types. This integrated system protects the inland navigation system that as Senator Bond has said "is the envy of the world." It also protects the petrochemical industry in Louisiana which has the second largest refining capacity in the country producing approximately 15 billion gallons of gasoline at 19 refineries. Louisiana ranks second in produced natural gas and third for oil production. The pipeline system which supplies much of the country with natural gas and petroleum originates in Louisiana. The petrochemical and oil and gas industries depend almost totally on Federally constructed levee systems to protect them from floods and hurricanes, and depend on the navigation system for transportation. This infrastructure development which benefits the entire country has contributed to the destruction of our marshes and wetlands which produce a commercial fish and shellfish harvest worth over $600 million and 40% of the Nation's wild fur and hides harvest worth over $15 million. This wealth of natural resources cannot survive and propagate for the economic benefit of the State and Nation without on-shore facilities that require protection from major storms and hurricanes. It would be a national loss if these facilities and infrastructure were not protected since Louisiana plays a strategic part in the national economy. But Louisiana alone cannot support the infrastructure on which the country depends. All these facilities in Louisiana that support and contribute to the economic well being of the country are protected by flood control measures; flood control measures that the Federal Government has appropriately committed itself to provide.

In making the following recommendations regarding construction, studies and some selected operation and maintenance items, the State of Louisiana understands the Administration's need to reduce the Federal deficit, but would hope that Congress and the Administration will honor their prior commitments to infrastructure development and fund our requests. We feel that water resources projects are probably the most worthwhile and cost effective projects in the Federal budget, having to meet stringent economic justification criteria not required of other programs. We ask that this be taken into consideration in the final decision making process to appropriate the available funds.

PROJECT		LOUISIANA REQUEST
Authorized Studies		
Black Bayou Diversion, LA	$	351,000
Calcasieu River at Hackberry, LA	$	140,000
Intracoastal Waterway Locks, LA	$	900,000
Jefferson Parish, LA	$	700,000
Lafayette Parish, LA	$	624,000
Mississippi River Ship Channel, LA	$	778,000
Orleans Parish, LA	$	740,000
St. Tammany Parish, LA	$	150,000
West Shore - Lake Pontchartrain, LA	$	129,000
Preconstruction Engineering and Design		
Comite River Diversion, LA	$	800,000
East Baton Rouge Parish, LA	$	400,000
Port Fourchon, LA	$	300,000
West Bank - East of Harvey Canal, LA	$	1,000,000
Construction		
Aloha-Rigolette Area, Red River, LA	$	1,800,000
Cat Island Revetment, Red River, LA	$	3,900,000
Lake Pontchartrain and Vicinity, Hurricane Protection		Full Capability of Corps
Larose to Golden Meadow, Hurricane Protection	$	2,000,000
Mississippi River, Gulf Outlet		Full Capability of Corps
Mississippi River Ship Channel, LA	$	3,500,000
New Orleans to Venice, Hurricane Protection		Full Capability of Corps
Ouachita River Levees	$	100,000

PROJECT	LOUISIANA REQUEST
Red River Chloride Control	Full Capability of Corps
Red River Waterway, LA	$ 17,000,000
Southeast Louisiana Urban Flood Control	$ 18,000,000
Westwego to Harvey Canal, LA. Hurricane Protection	$ 7,000,000

OPERATION AND MAINTENANCE Request: Full Capability

Operation and maintenance of completed projects is essential to achieving the full benefits of the projects. In times of budget constraints it is essential that operation and maintenance not be put off which would hamper the effectiveness of the projects and cause more expensive maintenance at a later date. We urge you to continue funding operation and maintenance to the Corps' full capability.

OUACHITA RIVER LEVEES Request: $ 100,000

The culvert replacement in the Ouachita River Levees will be completed this fiscal year. We thank you for your assistance in this desperately needed work. What remains is to bring the levees up to standards. We request that specific language be added to the appropriations bill to direct the Secretary of the Army to accomplish this task by raising the levees and surfacing the crown. We request that $100,000 be provided in Fiscal Year 1997 for this work.

MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA
Request: $ 3,500,000

The Mississippi River Ship Channel is now capable of providing a 45 foot deep channel all the way to Baton Rouge, Louisiana. The Phase I mitigation construction is underway and we request an appropriation to keep it on schedule, and to continue the design memorandum for the remaining Phase III features. We thank you for your continued support for infrastructure development which keeps our country competitive in the world market.

EAST BATON ROUGE PARISH, LA Request: $ 400,000

The East Baton Rouge Parish Tributaries Project is designed to reduce flooding in five watersheds of the capital city of Baton Rouge, La. During the flood of record in 1983, East Baton Rouge Parish experienced flood damages estimated at $65 million. The Parish will be the local sponsor for this project which has a benefit to cost ratio of over 2 to 1. The funds requested will continue preconstruction engineering and design.

LAFAYETTE PARISH, LA Request: $ 624,000

Flooding from the Vermilion River in Lafayette Parish in 1993, and since, has caused damages to areas that had never flooded before. The feasibility study will begin this fiscal year and the funds requested are to continue the much needed study. The Parish has contributed funds to get the study underway as promptly as possible.

WESTWEGO TO HARVEY CANAL, LA Request: $ 7,000,000

Hurricane protection for the West Bank of the New Orleans metropolitan area is urgently needed. We urge the Corps to increase its capability for an accelerated construction schedule for this project. A Post Authorization Change Report is under review within the Corps to determine the feasibility of incorporating the Lake Cataouatche Levee into the project. This would extend hurricane protection west to the St. Charles Parish line. We urge your support for this addition.

WEST BANK - EAST OF HARVEY CANAL, LA Request: $ 1,000,000

The East of Harvey Hurricane Protection Project will modify the Westwego to Harvey Canal Project now under construction and provide greater net benefits realized than from the Westwego to Harvey Canal Project alone. This project will protect over 80% of residential structures in the area, which is a potential flood damage reduction of over $2.2 million and has a benefit to cost ratio of 4 to 1. We urge your support for this project and its early authorization.

ALOHA-RIGOLETTE AREA, RED RIVER, LA Request: $ 1,800,000

Construction of this much needed project has begun, but at a reduced construction schedule due to budget cuts. We urge your support for funds to put this project back on schedule.

RED RIVER WATERWAY - MISSISSIPPI RIVER TO SHREVEPORT, LA
Request: $ 17,000,000

Navigation is now possible to Shreveport, however the project still has many additional items to complete. The accelerated construction schedule mandated by your funding recommendations in previous years, we feel, has saved taxpayers of the United States millions of dollars on the construction of the Red River Waterway Project. We urge the continuation of this policy by providing $17 million for Fiscal Year 1997 based on the previously approved schedule.

CAT ISLAND REVETMENT, LA Request: $ 3,900,000

Cat Island Revetment along the Red River has become an emergency situation threatening the levee. We request that specific language and funds be included in the appropriations bill directing the Secretary of the Army to construct this much needed revetment at Cat Island under authorization of the Red River Emergency Bank Protection Program.

TWELVE MILE BAYOU REVETMENT, LA Request: $ 600,000

The revetment along Twelve Mile Bayou at Shreveport is threatening Highway 3049. Repair of this revetment is urgently needed and we request specific language and funds be included in the appropriations bill directing the Secretary of the Army to correct this situation.

RED RIVER BASIN CHLORIDE CONTROL PROJECT Request: Full Capability

With the Red River Waterway Project bringing navigation to Shreveport, the water supply needs of the area will increase. Reducing the chloride content of the Red River, which is technically and economically feasible, would make the Red River usable as an economical water supply. The construction of the Red River Chloride Control Project will enhance further economic development in the Red River Valley and make the Navigation Project prove even more economically feasible than previously anticipated. We ask that funds continue to be provided in future years until this project is completed.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

The passage of the Coastal Wetlands Planning, Protection and Restoration Act has been a positive force for Louisiana. This legislation is not only assisting the Nation and Louisiana in protecting and restoring precious wetlands of national significance but it has also freed up Corps' funds for other much needed flood control and navigation projects.

The State of Louisiana commends the Corps on its cooperation in coordinating the beneficial use of dredged material for coastal preservation.

CONCLUSION

We wish to express our thanks to the Appropriations Subcommittees on Energy and Water Development of the House and Senate for allowing us to present this brief on the needs of Louisiana. Without reservation, practically every single project in Louisiana which has been made possible through actions of these committees has shown a return in benefits many times in excess of that contemplated by the authorizing legislation. The projects which you fund affect the economy of not only Louisiana, but the nation as a whole. The State of Louisiana appreciates the accomplishments of the past and solicits your consideration of the appropriations requested for Fiscal Year 1997.

PREPARED STATEMENT OF THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT—MISSISSIPPI RIVER AND TRIBUTARIES PROJECT

The Louisiana Department of Transportation and Development, Public Works and Flood Control Directorate, is the agency designated to represent the State of Louisiana in the planning and orderly development of its water resources. This statement is presented on behalf of the State of Louisiana and contains recommendations for Fiscal Year 1997 appropriations for Louisiana projects under the Mississippi River and Tributaries Project.

Louisiana contains the terminus of the Mississippi River, which has the third largest drainage basin in the world, exceeded only by the watersheds of the Amazon and Congo Rivers. The Mississippi river drains 41 percent, or 1-1/4 million square miles, of the contiguous United States and parts of two Canadian provinces. All of the runoff from major river basins such as the Missouri and Upper Mississippi, the Ohio including the Tennessee and others, and the Arkansas and White, flow into the Lower Mississippi, which empties into the Gulf of Mexico through Louisiana.

The jurisdiction of levee boards in Louisiana includes one-third of the State's total area. However, the importance of this one-third of the State can be seen by the fact that it contains nearly 75 percent of the States's population and about 97 percent of the States's disposable personal income. Traditionally, the levee district areas are water rich and have fallen heir to industrial development that ranks high in the nation. It has been estimated that about 60 percent of the State's agricultural products come from levee district areas. So you can see why Louisiana and its twenty levee districts are so interested in seeing the completion of the Mississippi River and Tributaries Project.

In making the following recommendations regarding construction, studies and some selected operation maintenance items, the State of Louisiana understands the Administration's need to reduce the Federal deficit, but would hope that Congress and the Administration will honor their prior commitments to infrastructure development and fund our requests.

LOUISIANA PROJECTS	LOUISIANA REQUEST
Construction	
Atchafalaya Basin	Full Capability of Corps
Atchafalaya Basin, Floodway System	Full Capability of Corps
Channel Improvements	Full Capability of Corps
Mississippi Delta Region Project, Davis Pond	Full Capability of Corps
Mississippi and Louisiana Estuarine Areas	Full Capability of Corps
Mississippi River Levees	Full Capability of Corps
Tensas Basin, Red River Backwater Area, LA	$ 11,600,000

LOUISIANA PROJECTS	LOUISIANA REQUEST
General Investigations	
Morganza to the Gulf	$ 965,000
Preconstruction, Engineering and Design	
Louisiana State Penitentiary Levee	$ 600,000
Operation and Maintenance	
Atchafalaya Basin	Full Capability of Corps
Atchafalaya Basin, Floodway System, LA	Full Capability of Corps
Baton Rouge Harbor - Devil Swamp, LA	Full Capability of Corps
Bayou Cocodrie and Tributaries	Full Capability of Corps
Bayou Rapides Drainage Structure & Pumping Plant (LRR-SBL)	$ 400,000
Bonnet Carre Spillway	Full Capability of Corps
Channel Improvement	Full capability of Corps
Lower Red River - South Bank Levees	Full Capability of Corps
Mississippi Delta Region, Caernarvon, LA	Full Capability of Corps
Mississippi River Levees	Full Capability of Corps
Old River Control Structure	Full Capability of Corps
Red River Backwater Area	Full Capability of Corps
Tensas Basin, Boeuf & Tensas Rivers, AR, LA	Full Capability of Corps

NOTE: The projects listed above are only those in Louisiana and directly affecting the State. We realize that there are others in these areas, we endorse the recommendations of the Lower Mississippi Valley Flood Control Association.

ATCHAFALAYA BASIN Request: Full Capability

This project is a main stem component of the flood control plan for the Mississippi River and Tributaries Project. The Mississippi River can safely carry only one-half of the project flood, or 1,500,000 cubic feet per second, below Old River; the other 1,500,000 cubic feet per second must be discharged through the Atchafalaya Basin. The levees which must confine this flow to the basin are now deficient because they have settled below original design grade due to consolidation of the underlying soils, and the design has been revised upward. This places the lives and welfare of approximately 650,000 people and their property and improvements in 13 parishes in the immediate vicinity of the Atchafalaya Floodway in jeopardy each flood year. The tax assessment records indicate the value of potential flood losses to be approximately $8 billion, not including public improvements. Over the past half century, we have supported the Mississippi River and Tributaries Project and have agreed that construction of flood protection works should start upstream and progress downstream. As a result, the Mississippi River and Tributaries Project is now more than 90 percent complete in sites upstream from Louisiana while the levees in the Atchafalaya Basin can contain only approximately 90 percent of the project flood. Work on this project has been underway since 1928 and isn't scheduled for completion until the year 2010. We urge your support for funding this effort to the full capability of the Corps.

CHANNEL IMPROVEMENTS

Request: Continue construction
through completion of all
remaining projects - Full Capability

Channel improvements and stabilization provide protection of the levees and the development behind them, as well as preventing unsatisfactory alignment where the river's bank is unstable. Below Racetrack, where maintenance dredging is costing about $1 million annually, is a high priority area in Louisiana which needs immediate attention. Therefore, we urge you to fund this Channel Improvement portion of the budget at a level to keep the program moving forward. The funds we are requesting will provide for the dredging and revetment work necessary to accommodate increased flows caused by upstream improvements. It has come to our attention that a funding shortfall exists in this program for 1997. This is the number 2 priority for the State after the levee program. We encourage the Congress to proceed with this vital program. Additionally, we are distressed to learn that the future of the revetment program on the Mississippi River may be in jeopardy. This will be the first time ever in recent history that this vital program would be delayed or possibly terminated if appropriate funding is not provided.

MISSISSIPPI RIVER LEVEES

Request: Full Capability

The Mississippi River and Tributaries Project above Louisiana is 90 percent complete but to a much lesser extent within Louisiana. Because of the improvements upstream, increased flows are a major problem in Louisiana where the project is lagging behind the construction in the upper valley. We request that funds which have been reprogrammed be restored for levee enlargement work where there is a deficiency of 4 to 7 feet of main-line Mississippi River levees within the Fifth Louisiana Levee District, and funds also be restored for the relief wells designed to stop seepage problems. It is also requested that Federal funds be provided to purchase rights-of-way for this critical work as the Levee District is in an economically depressed area and does not have a tax base capable of producing the funds necessary for both maintenance and rights-of-way.

LOUISIANA STATE PENITENTIARY LEVEE

Request: $600,000

The Louisiana State Penitentiary Levee is the only section of Mississippi River levee in Louisiana that is not currently constructed to Federal standards. It was authorized under the Mississippi River and Tributaries Project in 1986 and re-authorized in 1990. We urge support in funding this project and request that specific language be included in the appropriations bill to direct the Secretary of the Army to construct this project before an emergency situation arises during a major river flood.

MORGANZA, LA TO THE GULF OF MEXICO

Request: $965,000

This study area of approximately 4,000 square miles lies in the corridor between the Mississippi and East Atchafalaya Basin Levees and is part of the alluvial floodplain of the Mississippi River. These levees intercepted the drainage which now must flow approximately 125 miles to the Gulf of Mexico. The area is affected by backwater flooding from the Atchafalaya Basin and is also affected by tides. This is a very important project to the State and we urge your continued support for funding. This study is a good first step to identify potential solutions. However, we support expediting a key feature already identified by the Corps, the Houma Navigation Canal lock structure and ask for the Committee's support with authorization and appropriations.

MISSISSIPPI DELTA REGION PROJECT, DAVIS POND

Request: Full Capability

Davis Pond Freshwater Diversion Project is necessary to aid in the fight against coastal erosion and land loss. The State of Louisiana's commitment to this project is demonstrated by our agreement to provide 25 percent of the cost of construction, operation and maintenance of the

Davis Pond structure despite Congressional project authorization at 100 percent Federal cost as mitigation for the Mississippi River and Tributaries Project.

BAYOU RAPIDES DRAINAGE STRUCTURE AND PUMPING PLANT

(Lower Red River, South Bank Levees) Request: $400,000

The Bayou Rapides Drainage Structure and Pumping Plant is authorized under the Lower Red River, South Bank Levees of the Mississippi River and Tributaries Project. The report on this project has been approved and the Corps is now ready to begin the design phase. We urge your support in funding this project and request that specific language be included in the appropriations bill to direct the Secretary of the Army to construct this project.

LOCAL CONTRIBUTIONS FOR FLOOD CONTROL IMPROVEMENTS

Historically, Louisiana has always done its part in cooperation with the Federal agencies concerned with flood control. The Louisiana State Board of Engineers, the forerunner of the Department of Transportation and Development, Public Works and Flood Control Directorate, was created in 1879, the same year as the Mississippi River Commission, to coordinate the planning and construction of the required flood control facilities to protect the State. Since that time, local expenditures for flood control have exceeded $730,000,000. This amount adjusted to 1979 dollars represents expenditures in excess of $5.3 billion. Nearly one-half of the potential flooded area of the Lower Mississippi River valley lies in Louisiana. Local expenditures for flood control have increased with the growth of the valley. This record not only meets, but exceeds any National Water Policy local participation requirements ever put into practice.

CONCLUSION

The State of Louisiana, Department of Transportation and Development, Public Works and Flood Control Directorate, in particular, wishes to commend the Appropriations Subcommittees on Energy and Water Development, and express our appreciation for the foresight and understanding exhibited for water resources projects which are vital to the national interest. We solicit your further consideration of the recommendations presented herein.

PREPARED STATEMENT OF THE FIFTH LOUISIANA LEVEE DISTRICT

The Fifth Louisiana Levee District, created in 1886, is responsible for the performance of maintenance, repair, and inspection of 355 miles of levee in northeastern Louisiana. Main-line Mississippi River Levees comprise almost 214 of the miles.

Corps of Engineers funding for the following projects has been diverted to other activities. These projects are of great concern to us and the State of Louisiana:

State Line to Wilson Point, Levee Enlargement, East Carroll Parish, Louisiana

Item 503-R (Station 190+00 to 405+00): Construction for this 4.1-mile portion is scheduled for FY 96. The average deficiency in levee height is 6 feet. The estimated construction cost is $5,901,000 with right-of-way costs estimated to be $368,000.

Item 506-R (Station 0+00 to 190+00): Construction for this 3.6-mile portion was scheduled for FY 96 but was recently moved to FY 97. The average deficiency in levee height is 4.2 feet. The estimated construction cost is $5,262,000 with right-of-way costs estimated to be $270,000. This portion of the project closes the gap between Item 503-R and the levee in southeast Arkansas. The levees in southeast Arkansas have been raised to the 1973 revised grade with the exception of "free board only" provisions.

St Joseph to Waterproof, Levee Enlargement and Relief Wells, Tensas Parish, Louisiana

> Item 379-R: This project currently involves only the installation of relief wells as the levee enlargement portion was deleted. Relief wells are designed to help stop seepage problems from occurring in the area. The Mississippi River does not have to approach a major flood for seepage to become a problem as has been experienced in recent years. This project is the most critical to the Fifth Louisiana Levee District.

It is respectfully requested that funds for these projects be appropriated so that construction may proceed according to schedule. The Fifth Louisiana Levee District is unable to provide funds for right-of-way acquisition and funds for this purpose are also requested to be appropriated. These projects are a necessary part of the Mississippi River and Tributaries Project and are vitally important to providing flood control in the Lower Mississippi Valley.

PREPARED STATEMENT OF ROSS ATKINS, EXECUTIVE DIRECTOR, AMITE RIVER DRAINAGE AND WATER CONSERVATION DISTRICT

Mr. Chairman, my name is Ross Atkins, Executive Director of the Amite River Drainage and Water Conservation District. It is indeed an honor and privilege to present written testimony before this distinguished Committee and Chairman. I appreciate this opportunity to inform you of the efforts and needs of the citizens of the Amite River Basin to protect against damage and enhance the quality of life in this beautiful region of the State of Louisiana.

The Amite River Basin encompasses about 2,200 square miles in southeastern Louisiana and southwestern Mississippi. Headwaters of the Amite River originate in southwest Mississippi while Lake Maurepas serves as the designated drain for the Amite and its tributaries. In Louisiana alone, the Amite River and its tributary system meanders through six parishes (counties) with a population of approximately 600,000 people.

On April 14, 1967, the Senate Committee on Public Works adopted a Resolution sponsored by Senator Russell B. Long and the late Senator Allen J. Ellender authorizing the federal government to determine any needed improvements for flood control and related purposes on the Amite River, Bayou Manchac, and Comite River and their tributaries.

Twenty-nine years have elapsed and the U.S. Army Corps of Engineers has initiated and investigated numerous proposals aimed at alleviating flooding and drainage hazards in the Amite River Basin. The reason for such concentration on flooding and drainage reduction is clear. An excerpt from the Report of Flood Problem Areas and Damage Reduction Measures prepared by the Louisiana Statewide Flood Control Program's Project Evaluation Committee in 1986 states "Flooding along the Amite River and its tributaries is the most serious flooding problem in the

Mississippi River - Lake Maurepas Basin... it will take a continuation of coordinated efforts on a large scale to resolve this extremely serious problem."

Historical data from the U.S. Geological Survey depicts 23 floods on the Amite River Major floods occurred in 1973, 1977, 1979, 1983, 1990 and more recently the fourth worst flooding in history occurred in January of 1993. The most devastating flood on record is the flood of 1983 According to the U.S. Army Corps of Engineers' 1992 Amite River and Tributaries Feasibility Study of the Darlington Reservoir, flood damages from the flood of 1983 inundated 357,000 acres and flooded over 5,000 homes and 200 businesses. The end result was over $172 million in damages.

Mr. Chairman, my message and plea today is for you and this committee to assist in the efforts to minimize loss and trauma caused by our flooding problems in the Amite River Basin Our first real hope for solutions to our problems is the Comite River Diversion Canal. A 12 mile diversion of high water from the Comite River into the Mississippi River was authorized by Congress in 1992. This project, which is anticipated to cost $121,800,000 will serve as a major relief to the lower Comite while providing a significant relief of the main channel of the Amite River. The Corps informs that as much as 6 feet of water would be diverted from the citizens of Baker, Louisiana and Central Baton Rouge when the canal is completed. In fact, the Corps is on record as stating that the flood in January 1993 would have been almost entirely avoided had the canal been functioning at the time. Clearly, we must vigorously pursue the construction and completion of this vital project. It is a sobering thought to note that over 1,000 homes in East Baton Rouge parish would have been protected in recent floods had this project been in place

The status of the Comite Diversion is now in final Design Memorandum and awaiting re-authorization in the Water Resource Development Acts pending before Congress.

Please investigate and utilize the influence of this committee to ensure the citizens of the Amite River Basin will realize a flood control project which will also sustain and enhance environmental and recreational benefits to the communities.

Mr. Chairman, there are many other much needed solutions to the flooding and drainage problems in the Amite River Basin. The Corps is evaluating many proposals and the Amite River Basin Commission will continue to work closely with the Corps in addressing long-term solutions

Thank you.

PREPARED STATEMENT OF AUBREY J. LAPLACE, PRESIDENT, BOARD OF COMMISSIONERS, PONTCHARTRAIN LEVEE DISTRICT, LUTCHER, LA

THE LEVEE DISTRICT

The Pontchartrain Levee District extends downstream from the City of Baton Rouge to the New Orleans area, a distance of 115 river miles, includes the east (left descending) bank of the Mississippi River, and is comprised of portions of East Baton Rouge, Iberville, Ascension, St. James, St. John the Baptist and St. Charles Parishes. The Mississippi River east bank levee is continuous throughout the Levee District, including the Bonnet Carre Floodway. When completed, the Hurricane Protection Levee in St. Charles Parish will protect the area from Lake Pontchartrain tidal surges.

Extensive development of major industries has taken place in the Pontchartrain Levee District and is continuing. Along with industrial growth, our Levee District is experiencing dramatic increase in residential and urban expansions. Substantial portions of the Levee District area are used for agriculture. Three nationally ranked deep-water ports are companions to the Pontchartrain Levee District--the Baton Rouge Port, South Louisiana Port, and New Orleans Port. A portion of the New Orleans International Airport is also located within the district.

The District contains numerous pipeline systems which deliver goods to nationwide distribution points. Interstate Highways 10 and 55 and a number of major U.S. Highways traverse the Levee District, along with major railroads. The Mississippi River 55-foot deep ship channel is the western Levee District boundary. Three (3) major bridges cross the River in our District.

All these features and many other improvements along with more than one million residents are protected by the Mississippi River and Tributaries Flood Control Project in this Levee District. Only through continuous, effective flood control improvements and maintenance can this area and the Lower River Valley meet requirements to serve national needs for our economy and its improvement.

COMMENTS

The Pontchartrain Levee District has full realization of the necessity of keeping this Subcommittee advised of current and future needs for federal monetary support on vital items of the MR&T Flood Control Project. In 1995 the Senate Subcommittee refused to give audience to our seven (7) State Delegation representing the Lower Mississippi Valley. We trust that injustice will never be repeated. We compliment the House Subcommittee for allowing testimony to be presented. The importance of flood control has not diminished over the years, but rather continues to provide greater benefits each year. In Louisiana about eight-five percent of its citizens along with metropolitan areas, major industry, agricultural products and vast natural resources (all are businesses) now live behind levees. This statement is submitted to urge and justify adequate funding for the project in fiscal year 1997. Appearing before the Subcommittee today are Commissioner Joseph Gautreau and Project Manager, Mike Babin.

Corps of Engineers construction contracts, funded by MR&T Appropriations, is a major factor enabling Louisiana to retain a favorable unemployment level. If that trend is continued, appropriations for FY 1997 should be somewhat equivalent to amounts in the past few years. Substantially reduced amounts would result in unemployment increases, have similar negative effects on the seven (7) States in the Lower River Valley and surrounding regions, and be a severe setback to the project that we have worked on continuously since 1928. The following recommendations point out the necessity and justification of continuing project work at acceptable levels.

RECOMMENDATIONS

Mississippi River Levees

In the Pontchartrain Levee District several reaches of main line levee must be enlarged and slope paved to advance from the current status of partial flood protection. Priority is recommended for two particular reaches, that is, Romeville-Remy and Remy-Garyville. Both these items were scheduled for contract award January 1996, and July 1996, respectfully. Due to unavailable funding to support new FY 1996 work and dim prospects for receiving additional funds to allow new commitments in FY 1997, these two (2) items have been delayed until late FY 1997 or beyond, and even then it is doubtful that both items could be awarded in the same fiscal year. Future levee enlargements and slope paving are required in five of six parishes of the Levee District. The Board of Commissioners Pontchartrain Levee District urges the Subcommittees to appropriate at least $35,000,000 in FY 1997 for Mississippi River levees.

Channel Improvement

Main line levees must be protected from caving banks throughout this lower river reach where extremely narrow battures are the last line of defense against levee crevasses and failures. If caving banks are not stopped the only answer is "setback". Simply stated there is no room remaining for levee setbacks in the Pontchartrain Levee District. Revetment construction must be annually funded to prevent levee failures, land losses and unending relocations. This item also benefits the 55-foot deep navigation channel. The Pontchartrain Levee District recommends at least $65,000,000 be appropriated for FY 1997 which concurs with the President's budget.

Lake Pontchartrain and Vicinity Hurricane Protection Project

The Pontchartrain Levee District is the local assuring agency for that portion of the project in St. Charles Parish and is responsible for thirty percent financing of construction costs, providing rights-of-way and performing relocations. Design and engineering work is completed. Mitigation requirements have been met.

There are no objections or challenges. Only construction funds are needed. A sum of fifty million dollars ($50,000,000) over the next five years will result in protection to elevation 9.0 which FEMA requires for flood insurance in the area. The Board of

Commissioners strongly recommends an annual federal appropriation of $7,000,000 for the St. Charles Parish portion of the project.

Another element of this overall project is "West Shore" in St. John the Baptist Parish, not yet authorized. FY 1996 appropriation included funding for the required Feasibility Study to be considered for authorization. We compliment the Subcommittees for foresight and understanding of this critical need.

NEAR FUTURE IS UNCERTAIN--ITS UP TO CONGRESS

In the search for new ways to accomplish required flood control and other water resources projects, Congress must remain mindful not to jerk the rug out from under its own feet. Without protection there will be few jobs, farms, industries, businesses, voters and related activities. Congress should know that we in the Lower Mississippi Valley do not have the option to say "No". Also it stands that Congress should not have the option to reduce, remove or stop federal responsibility for controlling national water, whether in flood or drought. With respect to Louisiana most of its runoff is generated outside the State area for all its main carrier rivers, including Mississippi, Red, Ouachita, Black, Atchafalaya Floodway, Pearl and Sabine Rivers. In Louisiana we have a comprehensive flood control plan sponsored and maintained by some 23 Levee Districts to handle and provide for safe passage of almost one half the nation's waters. This invokes federal involvement, don't mess up the system.

CONCLUSION

The Board of Commissioners, Pontchartrain Levee District, compliments the Subcommittee on Energy and Water Development for its keen understanding of real needs for the MR&T Flood Control Project and efficient, alert actions taken to appropriate funds for its many complex requirements. We endorse recommendations presented by the Association of Levee Boards of Louisiana, Louisiana Department of Transportation and Development, Lower Mississippi Valley Flood Control Association and Red River Valley Association.

PREPARED STATEMENT OF LARRY D. DOWDY, EXECUTIVE VICE PRESIDENT, LITTLE RIVER DRAINAGE DISTRICT

MR. CHAIRMAN AND DISTINGUISHED MEMBERS OF THE COMMITTEE:

MY NAME IS LARRY D. DOWDY AND I AM THE EXECUTIVE VICE PRESIDENT FOR THE LITTLE RIVER DRAINAGE DISTRICT HEADQUARTERED IN CAPE GIRARDEAU, MISSOURI. OUR DISTRICT IS A CIRCUIT COURT DRAINAGE DISTRICT CHARGED BY STATE STATUTES TO PROVIDE OUTLET DRAINAGE AND FLOOD PROTECTION TO A SIZABLE PORTION OF SOUTHEAST MISSOURI. OUR DISTRICT HAS BEEN AN OPERABLE ENTITY SINCE 1907.

WE ARE HERE TODAY AS A MEMBER OF THE LOWER MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION WHICH HAS BEEN A SPOKESMAN FOR FUNDING FOR THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT FOR MANY YEARS. WE SUPPORT THE ASKING OF THAT ASSOCIATION AND TRUST THAT YOU WILL ACT FAVORABLY ON THE REQUESTS THAT THEY MAKE.

OUR DISTRICT HAS APPEARED BEFORE THIS COMMITTEE FOR MANY YEARS. WE ARE APPRECIATIVE OF THE SUPPORT AND COURTESIES THAT HAVE BEEN EXTENDED TO THIS DISTRICT IN THE PAST. WE FEEL CONFIDENT THAT THAT SPIRIT OF COOPERATION WILL CONTINUE.

WE HAVE CONTINUALLY MET THE MANDATES SET FORTH BY THE CITIZENS WE SERVE AND AS REQUIRED BY THE CIRCUIT COURTS OF MISSOURI. WE ARE HERE REPRESENTING MORE THAN 2500 LANDOWNERS IN AN AREA OF SOUTHEAST MISSOURI THAT IS ONE OF THE MOST FERTILE, ONE OF THE MOST PRODUCTIVE, AND ONE OF THE MOST DIVERSIFIED FARMING

DELTAS OF OUR NATION. WE ARE THERE ON A DAY TO DAY BASIS AND WE KNOW THE NEEDS OF LOCAL INTEREST. WE KNOW THAT WE HAVE EXPERIENCED TWO (2) OF THE GREATEST FLOODS OF RECORD IN 1993 AND 1995 FROM THE MISSISSIPPI RIVER. ALL OF THAT WATER OCCURRED AND ORIGINATED MANY MILES FROM OUR DISTRICT. IT WAS NOT LOCAL RAINFALLS BUT IT WAS SNOW MELTS AND WATER FROM AREAS FAR UP THE MISSOURI RIVER BASIN COMING DOWN THE MISSISSIPPI RIVER AT SUCH VELOCITIES THAT THE MISSISSIPPI RIVER AND ITS LEVEES WERE UNABLE TO CONTAIN IT. ULTIMATELY IT CAUSED MANY LEVEES TO FAIL AND MUCH WATER TO FLOW INTO LANDS THAT WERE HIGHLY PRODUCTIVE AND TO HOMES THAT WERE VIRTUALLY DESTROYED.

WE ARE VERY MUCH CONCERNED THAT FOR THE FIRST TIME IN SIXTY (60) YEARS THAT WE SEE A REDUCTION IN THE FUNDS BEING SUBMITTED BY THIS COMMITTEE BELOW THAT OF WHAT THE PRESIDENT HAS SUBMITTED IN HIS BUDGET. WE FIND IT UNDESIRABLE AND UNWISE TO REDUCE FUNDING FOR A PROJECT THAT WHEN COMPLETED WILL RETURN MANY MILLIONS OF DOLLARS BACK TO OUR NATION'S ECONOMY AND WILL RELIEVE THE INCONVENIENCES OF FLOODING, INUNDATED ROADS, WATER IN OUR HOUSES, DAMAGES TO OUR PROPERTY, LOSS OF LIFE, CONTAMINATED DEEP WELLS, ETC.

WE ARE LIKEWISE CONCERNED ABOUT THE CONTINUED PERSONNEL CUTS THAT ARE BEING ASKED BY THE CORPS OF ENGINEERS WHICH IS GETTING TO THE POINT THAT THEY ARE UNABLE TO MEET THE NEEDS OF THE LOCAL INTEREST. THESE PEOPLE KNOW OUR NEEDS AND THEY DO ALL WITHIN THEIR CAPABILITIES AND AUTHORITY TO MEET THOSE NEEDS. PLEASE DO NOT TAKE THAT LOCAL FLAVOR AWAY FROM US.

WE CAN ALSO ATTEST TO YOU THAT THE ABILITY TO PAY CLAUSE THAT WE ARE HAVING TO CONTEND WITH AT THIS TIME AND SINCE 1986 IS VIRTUALLY SHUTTING DOWN PROJECTS IN OUR AREA. THOSE WHO CAN AFFORD TO PAY THEIR COST/SHARING ARE GETTING THEIR PROJECTS DONE AND THEY, IN MOST CASES, HAVE THE ABILITY TO FUND THE ENTIRE PROJECT. THOSE WHO ARE POOR AND THOSE WHO NEED IT THE MOST ARE UNABLE TO MEET THE VERY MINIMUM COST/SHARING AMOUNT AND IN MANY CASES COULD NOT MEET ANY PERCENT OF THE COST. AS YOU CAN SEE THEY ARE LEFT WITH NOTHING. WE PETITION YOU TO CHANGE THESE REQUIREMENTS TO PRESERVE ALL ELEMENTS OF OUR NATION TO RECEIVE SOME RELIEF.

WE ASK YOU TO LOOK AT THE ENTIRE M R AND T PROJECT CLOSELY. REVIEW BACK THE COMMITMENT THAT THE FEDERAL GOVERNMENT MADE TO THE PEOPLE OF THIS GREAT VALLEY. DETERMINE IF OUR GOVERNMENT IS MEETING THEIR END OF THE COMMITMENT, AND I CAN ASSURE YOU THAT LOCAL INTEREST HAS GONE FAR AND BEYOND THE COMMITMENT THAT THEY MADE AT THE OUTSET. REVIEW ALSO THE RETURN ON THE INVESTMENT OF THE FEDERAL DOLLAR. I BELIEVE THAT YOU WILL FIND THAT THE PROJECT IS PAYING BACK TO OUR FEDERAL GOVERNMENT ALMOST TEN FOLD FOR THE DOLLARS THAT HAVE BEEN SPENT.

WE ALSO URGE YOU TO TAKE BACK YOUR PREROGATIVE AND PRIVILEGE OF POLICY MAKING AND SETTING IN ORDER THE RULES WHEREBY SUCH PROJECTS AS THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT ARE COMPLETED AS SET FORTH BY OUR FOREFATHERS. WHO KNOWS BETTER WHAT THE NEEDS ARE OF THE LOCAL PEOPLE THAN THE PEOPLE THAT REPRESENT THEM? CERTAINLY THOSE WITHIN THE LOOP OF WASHINGTON, D. C. WHO HAVE NEVER SEEN A FARM, NOR FLOOD, NOR CARRIED SAND BAGS, CAN RELATE TO THE PROBLEMS AS WELL AS YOUR CONSTITUENTS. MR. CHAIRMAN WE URGE YOU TO TAKE BACK CONGRESS AUTHORITY AND RESPONSIBILITY ON PROJECTS SUCH AS THIS.

MR. CHAIRMAN WE RESPECTFULLY REQUEST THIS COMMITTEE INCLUDE IN THE 1997 FISCAL YEAR APPROPRIATIONS AN AMOUNT OF NO LESS THAN $350,000,000 FOR THE MISSISSIPPI RIVER AND TRIBUTARIES PROJECT. WE CONTEND THAT THIS IS NOT ENOUGH. $400,000,000 WOULD BE BETTER, HOWEVER, WE REALIZE THAT OUR NATION FACES SOME FISCAL PROBLEMS THAT NEED TO BE ADDRESSED, AND WE CONTINUE TO IMPROVE OUR VALLEY AT THE FUNDING LEVEL.

WE THANK YOU FOR YOUR TIME AND WE TRUST THAT YOU WILL ACT FAVORABLY ON OUR REQUEST TODAY.

PREPARED STATEMENT OF YELLOW BEND PORT, CHICOT-DESHA METROPOLITAN PORT AUTHORITY, MCGEHEE, AR

THE SLACKWATER HARBOR CONSTRUCTED AT YELLOW BEND HAS EXPERIENCED ABNORMAL GROWTH AND POTENTIAL FOR DEVELOPMENT IN THIS AREA OF THE MISSISSIPPI RIVER DELTA EXCEEDING THE EXPECTATION OF THE ORIGINAL DESIGN.

THERE IS A NEED TO EXTEND THE SLACKWATER HARBOR BEYOND THE EXISTING TERMINAL TO ACCOMMODATE PRESENT AND ADDITIONAL USAGE. IT IS REQUESTED THAT THE EXISTING SLACKWATER HARBOR BE EXTENDED AT AN ESTIMATED COST OF $4.3 MILLION TO MEET THIS NEED.

MR. CHAIRMAN AND MEMBERS OF THIS DISTINGUISHED COMMITTEE, MY NAME IS FRED DENTON. I SERVE AS THE CHAIRMAN OF THE CHICOT-DESHA METROPOLITAN PORT AUTHORITY WHICH IS THE GOVERNING AUTHORITY FOR THE SLACKWATER HARBOR AND PORT OF YELLOW BEND ARKANSAS LOCATED AT RIVER MILE 554.1 ON THE MISSISSIPPI RIVER. WE ARE PLEASED TO HAVE THE OPPORTUNITY TO SUBMIT THIS STATEMENT IN CONJUNCTION WITH THE LOWER MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION.

I. HISTORY AND FINANCING:

THE CHICOT-DESHA METROPOLITAN PORT AUTHORITY WAS ESTABLISHED APPROXIMATELY EIGHTEEN YEARS AGO THROUGH JOINT EFFORTS BY CHICOT AND DESHA COUNTIES, LOCATED IN SOUTHEAST ARKANSAS. AFTER YEARS OF HARD WORK BY MANY INDIVIDUALS IN BOTH COUNTIES, AND WITH THE ASSISTANCE OF STATE AND FEDERAL GOVERNMENTS, THE YELLOW BEND PORT BECAME A REALITY AND OPENED FOR BUSINESS A LITTLE OVER TWO YEARS AGO.

YELLOW BEND HARBOR AND INFRASTRUCTURE CONSISTS OF AN ENTRANCE CHANNEL AND A 350 X 810 FOOT HARBOR AREA, A 40-TON OVERHEAD BRIDGE CRANE WITH A 60-FOOT SPAN, EQUIPPED WITH A 10 CUBIC YARD HYDRAULICALLY OPERATED CLAM SHELL, AN ELECTRIC WINCH, A 100,000 POUND TRUCK SCALE AND A MATERIAL CONVEYOR SYSTEM FOR LOADING AND UNLOADING BARGES.

THE COST OF THE PROJECT WAS APPROXIMATELY $5,800,000 OF WHICH APPROXIMATELY $3,500,000 WAS FURNISHED BY THE FEDERAL GOVERNMENT, $500,000 WAS PROVIDED BY THE STATE OF ARKANSAS AND THE BALANCE OF $1,800,000 WAS FURNISHED BY LOCAL FUNDING. EVEN THOUGH THE PORT ITSELF IS LOCATED IN THE DELTA REGION OF SOUTHEAST ARKANSAS, AN ACUTELY ECONOMIC DEPRESSED AREA, THE CITIZENS TO BE SERVED BY THE PORT HAVE MADE THE SACRIFICES NECESSARY TO FINANCE THE PROJECT AND START-UP COST BY VOTING A LIMITED TWO (2) YEAR ONE CENT SALES TAX AND FINANCING THE BALANCE. IT IS RECOGNIZED THAT MANY OF THE CITIZENS IN THESE COUNTIES ARE DEPENDENT ON WELFARE BENEFITS FURNISHED BY THE FEDERAL GOVERNMENT, AND THAT THE POTENTIAL ECONOMIC BENEFITS OF THE PORT COULD PROVIDE MUCH NEEDED JOBS; THEREBY REDUCING THE NEED FOR WELFARE BENEFITS. THE FEDERAL GOVERNMENT'S CONTRIBUTION TO THIS PROJECT WAS, INDEED, A WISE INVESTMENT AND SAVINGS TO THE TAXPAYERS OF THIS COUNTRY.

II. PORT USAGE AND ECONOMIC BENEFITS TO DATE:

IN LESS THAN TWO AND ONE-HALF YEARS, APPROXIMATELY 310,000 TONS OF COMMODITIES, SUCH AS STEEL RAIL IMPORTED FROM RUSSIA, RAW RUBBER FROM ASIA, ROCK FOR HIGHWAY CONSTRUCTION, FERTILIZER, COTTONSEED, SOYBEANS, AND LOGS, HAVE MOVED THROUGH THE PORT. THIS IS BY ALL ACCOUNTS AN EXCELLENT START FOR A RELATIVELY NEW PORT.

THIS ACTIVITY HAS GENERATED APPROXIMATELY $900,000 IN DIRECT REVENUES. HISTORICALLY, MONEY TURNS OVER APPROXIMATELY SIX (6) TIMES IN AN AREA. THIS WOULD MEAN OVER $5,000,000 IN ECONOMIC ACTIVITY TOOK PLACE IN THIS DEPRESSED SECTION OF THE COUNTRY.

BECAUSE OF THE PORT'S EXISTENCE, A NEW LOG CHIPPING COMPANY HAS LOCATED NEAR THE PORT TO SERVE A LOCAL PAPER MILL WITH RAW PRODUCTS, THUS CREATING NEW JOBS. LOGS WILL BE SHIPPED IN TO THE COMPANY THROUGH THE PORT, AND EXCESS CHIPS WILL BE MOVED OUT THROUGH THE PORT FOR SHIPMENT TO OTHER PAPER MILLS.

III. PORT OPPORTUNITIES AND REQUIREMENTS:

POTENTIAL MANUFACTURERS AND SHIPPERS ARE CONTINUOUSLY EXPRESSING INFRASTRUCTURE NEEDS WHICH EXCEED THE PRESENT AVAILABLE FACILITIES. FOR THE PORT AUTHORITY TO ACCOMMODATE THE NEEDS OF THESE COMPANIES, EXPANSION OF THE HARBOR AND SUPPORTING INFRASTRUCTURE IS VITAL. ACCORDINGLY, THE PORT AUTHORITY AND AREA COMMUNITY AND LOCAL GOVERNMENT LEADERS ARE WORKING DILIGENTLY ON PLANS TO EXPAND THE PORT'S 40-TON CRANE INTO A 30,000 SQUARE FOOT MULTI-PURPOSE WAREHOUSE, SECURING ON-SITE RAIL SERVICE AND CONSTRUCTION OF COMMODITY AND FERTILIZER STORAGE FACILITIES. THEY ARE WORKING WITH LOCAL AREA BANKS TO SECURE LOANS FOR SOME OF THESE PROJECTS WHICH WILL BE REPAID BY THE PORT AUTHORITY'S SHARE OF THE SHIPPING REVENUES. HOWEVER, DUE TO THE ORIGINAL CORPS OF ENGINEER'S DESIGN, THE WATER FRONTAGE IN THE HARBOR IS BASICALLY CONSUMED BY ONE TERMINAL OPERATION; THE USAGE HAS EXCEEDED THEIR ORIGINAL EXPECTATIONS. DURING PERIODS OF LOW RIVER STAGE THAT OCCUR ANNUALLY ON THE MISSISSIPPI RIVER, USE OF THE PORT IS SEVERELY LIMITED TO SERVING ONLY ONE BARGE AT A TIME. THE HARBOR COULD BE EXTENDED TO ELIMINATE THIS PROBLEM WHICH WOULD GREATLY ENHANCE THE PUBLIC TERMINAL OPERATIONS AND CREATE OPPORTUNITIES FOR PRIVATE SPECIAL PURPOSE TERMINALS. ADDITIONAL PUBLIC AND PRIVATE TERMINAL OPERATIONS WILL CREATE OPPORTUNITIES TO ENTICE VALUE ADDED MANUFACTURING FIRMS TO LOCATE NEAR THE PORT, THEREBY PROVIDING MUCH NEEDED JOBS. THE PORT AUTHORITY HAS OPTIONS TO PURCHASE LAND ADJACENT TO THE PORT AND IS WORKING WITH CONSULTANTS TO PRODUCE PLANS FOR THE ESTABLISHMENT OF AN INDUSTRIAL PARK ON THIS PROPERTY. WITHOUT THE HARBOR EXTENSION, THE CREATION OF BADLY NEEDED NEW JOBS WILL BE SEVERELY RESTRICTED.

MR. CHAIRMAN, AS NOTED EARLIER, THE FEDERAL GOVERNMENT ASSISTED THE PORT AUTHORITY WITH FINANCIAL ASSISTANCE FOR THE CONSTRUCTION OF YELLOW BEND PORT AND LOCAL CITIZENS DID THEIR PART TO MAKE THIS PROJECT A REALITY. TO DATE, THE FINANCIAL RETURN ON MONIES INVESTED BY ALL PARTIES HAS BEEN EXCELLENT. THEREFORE, WE ARE REQUESTING THE FEDERAL GOVERNMENT TO CONTINUE THIS PARTNERSHIP BY GRANTING FINANCIAL ASSISTANCE IN THE AMOUNT OF $4,300,000 FOR THE HARBOR EXTENSION WHICH WILL FURTHER ENHANCE POSITIVE RESULTS FOR THIS PARTNERSHIP.

WE URGE YOU TO SUPPORT THE EXTENSION OF THIS HARBOR. ON BEHALF OF THE CITIZENS OF CHICOT AND DESHA COUNTIES, THANK YOU FOR THE OPPORTUNITY TO MAKE THIS STATEMENT.

FRED DENTON, CHAIRMAN
CHICOT-DESHA METROPOLITAN PORT AUTHORITY
P.O. BOX 728
MCGEHEE, ARKANSAS 71654
TELEPHONE - 501-222-3880
FAX - 501-222 4853

KENNY GOBER, EXECUTIVE DIRECTOR
CHICOT-DESHA METROPOLITAN PORT AUTHORITY
P.O. BOX 305
MCGEHEE, ARKANSAS 71654
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PREPARED STATEMENT OF KENNETH L. WEILAND, P.E., CEO, AND CHIEF ENGINEER, YAZOO-MISSISSIPPI DELTA LEVEE BOARD

This statement has been prepared by Kenneth L. Weiland, P.E., CEO and Chief Engineer for the Yazoo-Mississippi Delta (YMD) Levee Board. It is submitted today, February 27, 1996, on behalf of the entire Levee Board and the citizens they represent in the Mississippi Delta, which includes the Yazoo and Sunflower River Basins. The YMD Levee Board supports the general funding testimony for fiscal year 1997, made before you today by the Lower Mississippi Valley Flood Control Association, and as members of this Association, join in their praises of your continuing support for the important flood control projects within the Mississippi River and Tributaries (MR&T) Project. We are extremely concerned about current policies and rhetoric advocating the federal government's retreat from its long standing support of flood control throughout the lower Mississippi valley. We respectfully request your attention, not only to the vital monetary needs of flood control, but to the equally essential policy and administration aspects of our mission.

Due to the fact that the Association's testimony is taking place before any official funding information is available, this statement will not include any specific funding dollar amounts, rather, this statement will outline the critical flood control work needed in our region for the protection of the citizens of our District. In the recent past, a funding target of $400 million has been accepted as a reasonable funding level for the timely prosecution of the work to be completed on the MR&T project as well as the proper maintenance of those works already completed. Both the FY '96 Executive budget request and the final FY '96 final appropriation by Congress fell far short of this figure. As a result, many items of construction, studies, and maintenance have been delayed due to lack of funds for FY '96. The YMD Levee Board makes its most urgent and ardent appeal that proper funding be provided by Congress, not only for the conduct of scheduled FY '97 work, but also to recapture the time lost on projects that have been delayed or postponed in 'FY 96 due to lack of funding. Congress must recognize the damaging impact to the nation's economy that would result from allowing the MR&T project to become more vulnerable to a catastrophic failure of any one of its major components due to delays and neglect caused by inadequate funds.

The following paragraphs identify certain projects included within our Levee District that merit special mention, followed by a tabular listing of key components of our funding request for FY '97.

MISSISSIPPI RIVER LEVEES AND CHANNELS

After witnessing the total devastation on the Upper Mississippi River during the summer of 1993, there can be no question as to the importance of the continued maintenance and upkeep of the mainline levee system along the Lower Mississippi River. The YMD Levee Board, though proud of our long record of protection of the main line levee in our District, understands that your generous funding to insure the timely completion of the MR&T project, as well as major maintenance of the completed portions of the project, are the key to preventing a catastrophic failure of the system.

In this regard, the YMD Levee Board has identified areas on our mainline levee that have developed underseepage problems under the stress of repeated high water on the Mississippi River. These areas are being investigated, and remedies formulated by the Corps of Engineers. It is vital that adequate funding be provided to the Lower Mississippi Valley Division Corps of Engineers and its Districts to hasten these studies and plan formulations, as well as the necessary construction work to eliminate any deficiencies in the mainline levee.

We ask that you not only continue funding for construction and maintenance activities within our district, but also for the entire reach of the Lower Mississippi River included within the MR&T project. This system of levees, channels and bank stabilization work stands out to the world as a model of governmental resolve and success to protect its people, economy, and infrastructure from the ravages of flood waters.

UPPER YAZOO PROJECTS - CONSTRUCTION

Following the destructive flood of 1932, Congress authorized the formulation of a plan that would reduce the risk of flooding of the Mississippi Delta from the uncontrolled release of headwater out of the hills in north central Mississippi. The original plan, released in 1936, included a system of flood control reservoirs that would discharge into a system of channels and levees that could safely convey the headwater from the hills to the Mississippi River. In the late '80s, this project was forced into reformulation under the guise of environmental concern. This reformulation process was completed in late 1993, with the only tangible result being the five year delay of flood control benefits to our District that was promised sixty (60) years ago. Construction was immediately resumed on the item of work that had been in progress at the time the project was forced into reformulation, and the second item of work on the reformulated plan is now underway. The YMD Levee Board respectfully requests that the full capability of the Vicksburg District Corps of Engineers available to this project be adequately funded in order that construction on this long awaited project can proceed as rapidly as possible.

SUNFLOWER BASIN CHANNEL MAINTENANCE PROGRAM

Over time, all streams in the Delta lose their capacity to convey design discharges due to siltation of the bottom of the streams. In the month of July, 1989, sections of the Mississippi Delta along the Sunflower River system experienced significant flooding over half grown row crops of food and fiber. In response to this devastation, the Board of Mississippi Levee Commissioners (MLB), located in Greenville, MS, requested a study by the Corps of Engineers (Corps) to determine whether the reduction of the Sunflower River system flow capacities had contributed to the flooding, and thus, whether the Corps should begin its obligatory maintenance of the channels in this system. Subsequent surveys by the Corps reflected loss of channel capacity from the original design of approximately forty (40) percent. The YMD Levee Board, whose District shares in the damages resulting from the overflow of the rivers in this area joins the MLB in full support of the funding request by the Corps for this maintenance project.

MISSISSIPPI DELTA MISSISSIPPI STUDY

In October of 1992, the YMD Levee Board and the MLB signed sponsorship agreements with Vicksburg District to begin surveys for those portions of the Sunflower River system not included in the reach of the above mentioned maintenance project. This study will identify reaches of this river system above MS Highway 82 that are in need of maintenance as well as compile much needed data on land use changes that have taken place in the Sunflower basin since the original project was completed in the 1960's. The YMD Levee Board respectfully requests your support of this important study.

YAZOO TRIBUTARIES STUDY

The Yazoo Tributaries Study is the last phase of the MR&T project in the Yazoo Basin. This study will identify work necessary for proper drainage and flood control on the major tributaries to the Yazoo River system. Due to the shortfall of funds in FY '96, work on this study was suspended and thus a substantial delay will be introduced into the overall project schedule unless adequate funding is provided in FY '97 to accomplish the work scheduled for FY '97 as well as the work that should have been performed in the current fiscal year. The major tributaries included in this study may play a key role in the development of one of the key commercial sites in the Mississippi Delta. The YMD Levee Board therefore urges Congress to provide full funding for this study.

YAZOO-MISSISSIPPI DELTA LEVEE BOARD
ENERGY & WATER RESOURCES
FY '97 APPROPRIATIONS PRIORITIES

DESCRIPTION	YMD LEVEE BOARD REQUEST FY '96 $(000)	YMD LEVEE BOARD REQUEST FY '97 $(000)
Mississippi River Levees, AR, IL, KY, LA, MS, MO, and TN		
Tallulah-Magna Vista, MS, Berm, Item 475-LA	600	-
Tallulah-Magna Vista, MS, Berm, Item 475-LB	1,500	-
Carolina-Valewood, MS, Enlargement	0	-
Mississippi River Channels, AR, IL, KY, LA, MS, MO, and TN		
Pickett MS Dike, MS River mile 704	0	-
Above Norfolk Star Dike, MS River mile 711	0	-
Yazoo Basin, MS - Construction Funding		
Upper Yazoo Projects	11,200	-
Tributaries	2,948	-
Big Sunflower River	8,920	-

DESCRIPTION	YMD LEVEE BOARD REQUEST FY '96 $(000)	YMD LEVEE BOARD REQUEST FY '97 $(000)
Main Stem	25	-
Reformulation Unit	2,810	-
F&WL Mitigation Lands	25	-
Demonstration Erosion Control	22,000	-
Yazoo Basin, MS - Maintenance Funding		
Tributaries	1,135	-
Big Sunflower River	2,012	-
Greenwood	860	-
Main Stem	1,390	-
Will M. Whittington Auxiliary Channel	474	-
Yazoo City	709	-
Yazoo Backwater Area	529	-
Yazoo Basin, MS - Surveys & Study Funding		
Mississippi Delta	1,800	-
Yazoo Tributaries Study	0	-

PREPARED STATEMENT OF JAMES E. WANAMAKER, CHIEF ENGINEER, BOARD OF MISSISSIPPI LEVEE COMMISSIONERS, GREENVILLE, MS

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I am James E. Wanamaker, Chief Engineer for the Board of Mississippi Levee Commissioners, Greenville, Mississippi, and I have the privilege of presenting this statement on behalf of this Board and the citizens of this Levee District. This District consists of the counties of Bolivar, Issaquena, Sharkey, Washington, and parts of Humphreys and Warren in the Lower Yazoo Basin in Mississippi.

Although the President has not yet presented his budget request for the Corps of Engineers Civil Works Program for fiscal 1997, the Lower Mississippi Valley Flood Control Association will be presenting a general statement in support of an appropriation of $400,000,000.00. This level of funding is required to complete the Mississippi River and Tributaries Project in an orderly planned manner. These funds support the construction, surveys, engineering, and the operation and maintenance of this project that spans seven states. The Congress for almost 70 years has generously supported this project that protects the Lower Mississippi Valley from flood waters originating from 41% of the United States, and provides an inland waterway that is vital to the economy of not only the United States but the entire World.

A major component of this project is a system of Mainline Mississippi River Levees that protects 28,000 square miles in the alluvial valley from the ravages of flood. Without having the benefit the President's budget request for this fiscal year, we can only address funding requirements that we estimate is needed by the Vicksburg District for completion of the Mainline Mississippi River Levee Enlargement and Berm Program in that District. Our request last year included funds that would allow work to be performed on 8 contracts in the Vicksburg District. Because of the reduced funds being experienced in the District, none of these contracts will be awarded this fiscal year. With this in mind, we are requesting that the MR&T budget for Mainline Mississippi River Levees include adequate funding to allow an expenditure of

$11,200,000.00 by the Vicksburg District for Levee Enlargement and Berm Construction. The Board of Mississippi Levee Commissioners has made a commitment to provide adequate funding for right-of-way acquisition that will allow these items to be awarded during fiscal year 1997.

With the first item of construction on the Upper Steele Bayou Project nearing completion at this time, the Board of Mississippi Levee Commissioners had anticipated awarding the remaining three contracts during fiscal year 1996. In an effort to meet the schedule for right-of-way acquisition, the Levee District employed additional personnel and borrowed funds to cover their expense now only to find that the award of these contracts will be delayed until FY 1997. An appropriation of $11,000,000.00 for the Yazoo Basin Big Sunflower River & Tributaries Project will allow the Vicksburg District to proceed with the award of contracts during FY 1997. The Levee District continues in this effort to provide the rights-of-way on the projected schedule to avoid any delay in the construction of this project so vitally needed to protect the City of Greenville.

With construction initiated on the Upper Yazoo Project, we had looked forward to seeing contracts awarded in fiscal 1996 on channel work that would extend to near Greenwood. As with all of the other projects included in the Mississippi River & Tributaries Budget, the reduction in available funds for FY 1996 will not allow the Vicksburg District to award any construction contracts during this fiscal year. It is imperative that $14,000,000.00 be included in the appropriations for FY 1997 to avoid any additional delays in this project which will provide flood protection to many cities throughout the Delta.

As the Vicksburg District continues to proceed with the reformulation of the Yazoo Backwater Project, the Board of Mississippi Levee Commissioners continues to feel that the declaration of the remaining items in this project as separable elements fails to consider that this is an integral part of the complex Mississippi River & Tributaries Project. This project was authorized in 1941 by the Congress to offset the increase in stages on the Mississippi River that would be experienced in the lower Mississippi Delta caused by the removal of the Eudora Floodway from the Mississippi River Project. The Eudora Floodway would allow over bank flows of the Mississippi River to pass across the States of Arkansas and Louisiana to the Gulf of Mexico. The additional protection for the states of Arkansas and Louisiana is currently being paid for by the residents of the Lower Yazoo Basin of the Mississippi Delta. As the Yazoo Backwater Project comes out of reformulation, the Board of Mississippi Levee Commissioners continues to strive to see that this project is constructed under the authorization provided by the Congress at full Federal funding.

Many of the problems being experienced throughout the country are the result of the assumption of policy making by the Executive Branch of the Federal Government. The failure of the Secretary of Army to address "Ability to Pay" as they have been directed on at least two occasions by the Congress in the Water Resources Acts of 1990 & 1992 is a clear example of the Executive Branch's failure to carry out the direction of Congress. The desire of the Executive Branch to utilize cost sharing to remove many projects authorized by the Congress from the reality of being constructed becomes more apparent every day. When the Congress passed the Water Resources Development Act of 1986 which included the provisions for cost sharing it was not the intent of the Congress to have any project go unconstructed because of the inability of the non-Federal sponsor to pay. After 10 years the Executive Branch has failed to provide a policy that will comply with the intent of Congress when they passed the Water Resources Act of 1986.

As we prepare to initiate construction on the Big Sunflower River Bogue Phalia Maintenance Project, we are again faced with the possibility that policies set by the Executive Branch are jeopardizing this much needed work. The original General Design Memorandum on this project anticipated the need for major maintenance when this project became approximately 30 years old and very closely projected the cost of this work. The non-Federal sponsors for this project have each year provided funds to fulfill their responsibilities on the Big Sunflower River Project that contains over 600 miles of channel. Many individuals throughout the Mississippi Delta have made investments in the land, construction of homes and businesses with the expectation that the responsible parties would see that this project was maintained to provide the level of flood protection authorized by the Congress. It again appears that the Executive Branch is considering policies that would require this maintenance to be economically justified a second time before construction can start. The Vicksburg District has completed a comprehensive Supplemental Environmental impact statement for this work and we ask that funding in the amount of $1,500,000.00 be provided which will allow construction to be initiated on this maintenance project.

The Board of Mississippi Levee Commissioners would also like to express to you the need for continued funding of many other projects that provide flood protection to the Mississippi Delta. The Demonstration Erosion Control Project is doing an excellent job in controlling sediments in our Delta channels which will greatly reduce the need for maintenance in the future. We are asking that $19,000,000.00 be provided in FY 97 for this work. As we continue toward the completion of the reformulation process being carried out in the Yazoo Basin, it is necessary that $3,500,000.00 be provided to keep this work on schedule.

The need for wetlands reform is being experienced first hand by the levee districts along the Mainline Mississippi River Levee. The "Notice of Intent to Sue" received by the Vicksburg District, Corps of Engineers from the Sierra Club Legal Defense Fund is challenging the right of the levee districts to utilize their previously acquired rights of way for borrow materials to be used in the levee construction program. These lands were acquired by the levee districts for borrow and the denial of that use appears to constitute a taking. We urge the Congress to continue in its effort to provide landowners compensation in instances similar to that outlined above.

As soon as the President releases his budget for fiscal year 1997, we will be better able to access the needs for these projects. At that time, we may find it necessary to supplement our request. We are grateful for the consideration given to us each year by the Committee and appreciate the opportunity to present our requests to you at this time.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

I. SUMMARY OF FY97 REQUESTS

RED RIVER VALLEY ASSOCIATION

NOTE: Projects are NOT in any order of priority.

PROJECT — **APPROPRIATIONS**

1. Red River Waterway Project

   A. Continue funding to construct federal recreation sites at Locks and Dams 3, 4 and 5 to be cost shared with the established local sponsor. These include boat launches, comfort stations, parking facilities and security lighting.

   B. Initiate construction on the Eagle Bend Capout in Pool 5 which will bring these dikes above pool stage which will be much safer for recreation boaters. Eagle Bend is within two miles of two major federal boat launch facilities. In addition three revetments must also be reinforced in Pool 1; Hadden/Ft. Derussy Revetment, Ben Routh Revetment and Saline Revetment.

   Funds requested for FY97 — $17,100,000

2. In FY96 $1 million was appropriated for dredging to insure our many oxbows remain open to the Red River. This will ensure a high valued environmental ecosystem exists and siltation will not create lakes. Until this environmental initiative can be incorporated into a Water Resource Development Act (WRDA) bill we request funding be continued.

   Funds requested for FY97 — $ 1,000,000

3. Direct the Secretary of the Army to design and fully fund construction for the dual site, visitor center for the Red River Waterway Project. It is to be fully federal funded and these funds will be used for this project until expended.

   Funds requested for FY97
      a. Natchitoches - 4,500 sq ft. — $ 1,600,000
      b. Shreveport/Bossier - 9,000 sq. ft. — $ 3,000,000

4. Direct the Secretary of the Army, under the authorized Red River Chloride Project, to initiate construction of Crowell Brine Reservoir, Area VII and Area IX. These funds will be used for this project until expended.

   Funds requested for FY97 — $ 50,100,000

5. Congress will direct the Secretary of the Army to initiate a feasibility study to evaluate extending navigation from Shreveport, LA to Index, AR and to be cost shared with the established local sponsor.

   Funds requested for FY97 $ 4,000,000

6. Red River Emergency Bank Protection (Louisiana, Oklahoma, Arkansas and Texas) to fully fund construction for Cat Island Revetment, Dickson Revetment and Finn Phase II Revetment. Provide funding to complete design and fully fund construction of Hurricane Revetment and Blank Lake Revetment and for funds to initiate engineering and design of Hunter's Island and Pleasant Valley revetments.

   Funds requested for FY97 $ 20,000,000

7. Red River Levees and Bank Stabilization Below Denison Dam (Texas, Arkansas and Louisiana) to continue the levee rehabilitation & restoration.

   Funds requested for FY97 $ 3,800,000

8. The McKinney Bayou reconnaissance study of drainage in Miller County, Arkansas was initiated in January 1996. Insure enough funding exists to complete this study in FY97.

   Funds requested for FY97 Full Corps Capability

9. Little River County, Arkansas - The Secretary of the Army acting through the Chief of Engineers is directed to design and initiate construction of the Ogden and Walnut Bayou Levees along the Red River. These levees were authorized by the Flood Control Act of 1946. Funding of $1,000,000 is to be appropriated until expended. The Ogden Levee is to be designed to the same height as the opposite bank levees in Bowie and Miller County.

   Funds requested for FY97 $ 1,000,000

10. The Aloha-Rigolette Flood Control Project, Louisiana, was in the administration's budget for FY96 and we do not anticipate any interference with continued funding for ongoing construction.

    Funds requested for FY97 Full Corps Capability

11. McGrath Creek Flood Control Project, a tributary of Holliday Creek, located in Wichita County, Texas with a total project cost of $11.3 million. This is a project supported by the Administration and we do not anticipate any interruption of funds.

    Funds requested for FY97 Full Corps Capability

12. The Bowie County Levee Project, located along the Red River on the Texas side near Texarkana, Texas. The PED process has been initiated and expected to be completed in FY97. Our request of funds is to complete the PED.

    Funds requested for FY97 $ 100,000

13. Cypress Valley Watershed Project, a series of studies in the Big Cypress Valley region (TX) and Caddo Lake (TX & LA).

    Funds requested for FY97 Full Corps Capability

14. Direct the Secretary of the Army, under the authority of 'Red River Waterway, Index, AR to Denison Dam, TX, Bank Stabilization', to conduct a 'Sediment Transport Study' on the stretch of the Red River from Denison Dam to Index, Arkansas to determine the effect of bank caving on the navigation project in Louisiana. In addition, the ASA(CW) is directed to design and construct demonstration projects at two locations on the Red River above Index, AR, using the bendway weir technique. Funds are to be utilized until expended.

    Funds requested for FY97 $ 2,500,000

15. Direct the Secretary of the Army to expend funds to re-enforce the '12 mile Bayou Revetment' in Pool 5 of the Red River Waterway until funds are expended.

    Funds requested for FY97 $ 600,000

16. Bossier Levee District, Louisiana:

    A. Direct the Secretary of the Army to clear and grub the channel of Loggy Bayou from its confluence on the Red River for 7.8 miles. This channel has a detrimental affect on flooding in the vast drainage basin of this bayou.

    Funds requested for FY97 $ 500,000

    B. The existing Red Chute Guideline levee is a part of the Federal levee system, but does not meet 100 year protection as the adjacent levees. This was the only levee to over top in the 1991 flood. Direct that this section of levee be rehabilitated to meet a 100 year protection.

    Funds requested for FY97 $ 3,000,000

17. We support the MRT project affecting the Red River - "Bayou Rapides Drainage Structure". Funds in the amount of $400,000 could be used for design of this project.

II. ATTENDEES

RED RIVER VALLEY ASSOCIATION

FEBRUARY 27, 1996

RED RIVER VALLEY ASSOCIATION

Lynn Lowe, President of the RRVA, Texarkana, AR
Phil Alford, Vice-President: Arkansas, Lewisville, AR
Ron Glenn, Vice-President: Texas, Wichita Falls, TX

Jerry Boughton, Vice-President: Louisiana, Shreveport, LA
William C. Chapman, Vice-President: Oklahoma, Ardmore, OK
Rich Brontoli, Executive Director, Bossier City, LA
Norman Budd, Director, Alexandria, LA
Jimmy Banks, Director, Wichita Falls, TX
Edward Hawkins, Director, Foreman, AR
Ben Littlepage, Director, Natchitoches, LA
James Nipper. Director, Stamps, AR
David Potter, Director, Texarkana, TX
Louise Trainer, Executive Secretary, Bossier City, LA

ARKANSAS

Arkansas Red River Commission

Phil Alford, Chairman, Lewisville, AR
Ed Hawkins, Foreman, AR
James Nipper, Stamps, AR
David Potter, Texarkana, AR
Nelson Shaw, Legal Advisor, Texarkana, AR

LOUISIANA

Bossier Levee District

Paul Johnson, Second Vice President, Bossier City, LA
Ken Corley, Commissioner, Bossier City, LA

Caddo-Bossier Port Commission

Wayne T. Davis, Plain Dealing, LA

Caddo Levee District

Harold White, Shreveport, LA
Sam Windham, Shreveport, LA

LA Department of Transportation and Development

Curtis Patterson, Baton Rouge, LA

Red River Development Council

Dr. Leland Scoggins, Natchitoches, LA

Red River Waterway Commission

Ben Littlepage, Executive Director, Colfax, LA
Ken Guidry, Asst Executive Director, Natchitoches, LA
Norman Budd, Alexandria, LA
John Bundy, Benton, LA
Marc Dupuy, Jr., Marksville, LA
Richard Gibson, Coushatta, LA
Odell Hodnett, Colfax, LA
Pat Johnson, Natchitoches, LA
Larry Taylor, Bossier City, LA
Randy Walters, Natchitoches, LA

OKLAHOMA

William C. Chapman, Ardmore, OK

TEXAS

Red River Authority of Texas

Ronald Glenn, Wichita Falls, TX

Wichita County Water District #2

Jimmy Banks, Wichita Falls, TX

Cypress Valley Navigation District

Mrs. Dorothy Grant

INTERESTED PARTIES

Mrs. Dorothy Alford, Lewisville, AR
Mrs. Shirley Banks, Wichita Falls, TX
Mrs. Deanna Bundy, Benton, LA
Mrs. Elizabeth Chapman, Ardmore, OK
Mrs. Beverly Crownover, Wichita Falls, TX
Miss Ashley Crownover, Wichita Falls, TX
Mrs. Jo Anne Davis, Plain Dealing, LA
Miss Megan Davis, Plain Dealing, LA
Mrs. George Alice Dupuy, Marksville, LA
Mrs. Sue Glenn, Wichita Falls, TX
Mrs. Charlene Hawkins, Foreman, AR
Mrs. Kathryn Littlepage, Colfax, LA

III. LIST OF WITNESSES

Introduction of the group and opening remarks:

Mr. A. Lynn Lowe	Farmer/Rancher
President	Texarkana, AR
Red River Valley Association	

Introduction of witnesses:

Mr. Richard Brontoli
Executive Director
Red River Valley Association

The following witnesses will present testimony on behalf of the Red River Valley Association before the hearings of your Subcommittee today:

Mr. Phil Alford	Rancher
Vice-President - Arkansas	Lewisville, AR
Red River Valley Association	
Mr. Jerry Boughton	Banker
Vice-President - Louisiana	Shreveport, Louisiana
Red River Valley Association	

Mr. Pat Johnson Commissioner-at-Large Red River Waterway Commission	Construction Natchitoches, Louisiana
Mr. Ron Glenn Vice-President - Texas Red River Valley Association	General Manager Red River Authority of Texas Wichita Falls, Texas
Mr. William C. Chapman Vice-President - Oklahoma Red River Valley Association	Rancher/Attorney Ardmore, Oklahoma

PREPARED STATEMENT OF LYNN LOWE, PRESIDENT, RED RIVER VALLEY ASSOCIATION

Mr. Chairman and members of the Committee. I am Lynn Lowe, and I am pleased to represent the Red River Valley Association as its President. Our organization was founded in 1925 with the express purpose of uniting the citizens of Arkansas, Louisiana, Oklahoma and Texas to develop the land and water resources of the Red River Basin.

You will shortly hear presentations from individuals who will address the specific needs of their particular states. However, before they begin, I would like to briefly comment on a few of the concerns we have for the future economic well-being of the citizens residing in the four state Red River Basin area.

First, Navigation. Thanks to this committee's support, the Red River Navigation project to Shreveport-Bossier City, Louisiana, -- the largest metropolitan area in the River Basin -- is complete. We have already realized benefits this project will bring to the area -- and the nation -- and thank you for your support. We now ask for your continued support to study the feasibility of extending navigation from Shreveport-Bossier City, Louisiana into the State of Arkansas. Many areas continue to suffer major unemployment, and the navigation project, although not the total solution, will help revitalize our economy. We are aware that limited analysis, to date, have not had the results we had hoped for. If local economy benefits are considered we feel confident a project would be justified. You will hear from our Arkansas delegation the specifics on why a feasibility study must be funded, but I want to stress that the local sponsor, the Red River Commission of Arkansas, has available their 50% cost share for the complete study. Very few local sponsors have funds 'in the bank' and are also willing to fund additional studies to insure a complete analysis is made.

Second, Bank Stabilization. One of the most important continuing programs on the Red River is bank stabilization to stop the loss of valuable farmland that washes down streams to form sandbars and interfere with the navigable channel. These revetment projects are compatible with subsequent navigation and we urge that they be continued in those locations designated by the Corps of Engineers to be the areas of the worst bank caving.

Third, Flood Control. You will recall that in 1990 major areas of northeast Texas, Southwest Arkansas and the entire length of the Red River in Louisiana were ravaged by the worst flooding to hit the region since 1945 and 1957. More than 700,000 acres were flooded with total damages estimated at $20.4 million. However, it could have been much worse. The Corps of Engineers estimates that without the flood control measure authorized by Congress over the past several decades an additional 1.3 million acres would have been flooded with an estimated $330 million in additional flood damage to agricultural and urban developments. We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas and Texas.

And, Fourth, Clean Water. Nearly 3,500 tons of natural salts, primarily sodium chloride, enter the upper reaches of the Red River each day, rendering downstream waters unusable for most purposes. Several years ago, Congress authorized funding for the Truscott Brine Lake project, which is located on the South Fork of the Wichita River in King and Knox Counties, Texas. After the project became operational in 1987, an independent panel of experts found that the project not only continues to perform beyond design expectations insofar as providing cleaner water, but has an exceptionally favorable cost benefit ratio, in fact, one of the best cost-benefit ratios of any federally funded project in the nation. The Association urges Congress to continue supporting the Chloride Control Project in order to assure a clean water supply for residential, commercial, industrial, and agricultural uses. This truly affects multi-states requiring a Federal project; as the benefits affect all four states in the Red River Region.

We are sincerely grateful to you for the past support you have given our various projects. We hope that we can count on you again to fund our needs and complete the projects that will help us diversity our economy and create the jobs so badly needed by our citizens.

Civil Work Projects are the one most effective jobs program in the Federal government and more. On an average, 80% of the cost of these projects goes to the private sector for design contracts and all construction. Once completed our communities are provided with the infrastructure to promote economic development opportunities. What other federal program compares to the benefits received for the dollar spent?

Due to emergency funding of natural disasters and other unprogrammed commitments, FY96 appropriations for many projects have been reduced. We strongly encourage that this subcommittee introduce and that the Congress pass a Supplemental Appropriations to restore project funding to the FY96 level. This is important so that our private sector contractors can continue with projects and be paid for work completed. Forcing projects to cease construction will only increase overall project costs.

I am now please to present Richard Brontoli, the Executive Director of the Red River Valley Association who will introduce the witnesses for each of the four states.

Thank you,

PREPARED STATEMENT OF PHIL ALFORD, CHAIRMAN, RED RIVER COMMISSION OF ARKANSAS

As Chairman for the Red River Commission of Arkansas, I wish to thank the members of this Committee for the opportunity to again express the concerns, needs and priorities of funding vitally needed from the Congress to continue the orderly development of the Red River Valley in Southwest Arkansas.

1. Twenty-one years ago the Arkansas General Assembly created the Red River Commission upon the recommendation of Governor Dale Bumpers, now the Senior United States Senator for the State of Arkansas. The Commission was vested with the authority to furnish the local cooperation necessary for the construction and study of projects and to coordinate with the Corps of Engineer and the Congress to develop the water resources of the Red River in

Arkansas. With navigation now a reality to Shreveport, Louisiana, we are prepared to extend water transportation into Arkansas. Southwest Arkansas and East Texas are economic depressed regions. This project would provide multi-purpose opportunities for industries and increased employment. A regional impact study would clearly demonstrate the great benefits not realized to date. The Corps of Engineer Reconnaissance Study, completed in November 1995, indicated a B/C Ratio less than 1.0; however, I want to make you aware of four major issues. First, large stone and timber industries did not provide tonnage due to a fear of competition a waterway would bring in lower transportation costs. Second, the US Fish and Wildlife Service Planning Aid Report indicated minimal impact and most probably an enhancement to environmental value. Third, the local sponsor, Red River Commission of Arkansas, has their cost share for the study, on hand! Fourth, a project would provide economic benefits to this economically depressed area in the form of increased employment of our citizens, a local and national benefit not captured in the limited economic analysis made by the Corps in the reconnaissance study. There is no doubt tha this project is feasible and only a full feasibility study will prove that. Most importantly, I stress that the local cost share, 50%, is available now for this study.

* Congress should direct the Secretary of the Army, to initiate a feasibility study to evaluate extending navigation from Shreveport, LA to Index, AR and to be cost shared with the established local sponsor.

Funds requested for FY97	$ 4,000,000

2. Twenty-seven years ago, the bank caving in Southwest Arkansas accelerated to such an extent that the levee boards in that area banned together to form an association to present testimony to the Congress with a united voice. At that time, some of the upstream dams in Arkansas and Oklahoma had been completed which substantially alleviated the threat of floods, but which rapidly accelerated the bank caving due to the river remaining at one-half to two-thirds bank full for long periods of time. Since that time, upstream dams known as Millwood, Gillham, Dierks and DeQueen have been completed which have further reduced the threat of flooding, but which have accelerated the bank caving even more. It is imperative this on-going authorized project continues to be funded.

* Red River Emergency Bank Protection (Louisiana, Oklahoma, Arkansas and Texas) to fully fund construction for Cat Island Revetment, Dickson Revetment and Finn Phase II Revetment. Provide funding to complete design and fully fund construction of Hurricane Revetment and Black Lake Revetment and for funds to initiate engineering and design of Hunter's Island and Pleasant Valley revetments.

Funds requested for FY97.	$20,000,000

3. Following the disastrous flood of May, 1990, there can be no doubt of the importance of properly maintained levees and of bank stabilization. All areas not protected by properly maintained levees were flooded and the only protection from enormous bank caving was where revetment projects had been constructed by the Corps of Engineers. We are therefore asking for funds to continue the levee rehabilitation project currently underway in Arkansas to correct the deficiencies and make the levies easier to properly maintain.

- Red River Levees and Bank Stabilization Below Denison Dam (Texas, Arkansas and Louisiana) to continue the levee rehabilitation & restoration.

Funds requested for FY97	$ 3,800,000

4. The McKinney Bayou reconnaissance study of drainage in Miller County, Arkansas was initiated in January 1996. Insure enough funding exists to complete this study in FY97.

Funds requested for FY97	Full Corps Capability

5. Little River County, Arkansas - The Secretary of the Army acting through the Chief of Engineers is directed to design and initiate construction of the Ogden and Walnut Bayou Levees along the Red River. These levees were authorized by the Flood Control Act of 1946. The Ogden Levee is to be designed to the same height as the opposite bank levees in Bowie and Miller County. These funds are to be appropriated until expended.

Funds requested for FY96	$ 1,000,000

6. The Red River Chloride Project is extremely important to the citizens of the Red River Valley in Texas, Oklahoma, Arkansas and Louisiana. Its completion will provide water quality benefits to municipalities, agriculture and industry. The Arkansas delegation fully supports the completion of the project and the testimony as provided by our Texas delegation.

Thank you, Mr. Chairman for the opportunity to address this subcommittee and I am always available to provide you and your staff additional information or clarification on any issue presented.

PREPARED STATEMENT OF JERRY BOUGHTON, VICE PRESIDENT, LOUISIANA, RED RIVER VALLEY ASSOCIATION

Mr. Chairman and Committee Members, my name is Jerry Boughton, Vice-President, Louisiana, Red River Valley Association. Not only do I represent the citizens of Louisiana and support projects in Louisiana, but support the requests of my colleagues from Arkansas, Texas and Oklahoma. The projects in their states will provide benefits for the Red River citizens of Louisiana.

We request your support to fund the following projects:

1. We appreciate the support of your subcommittee to support the completion of navigation to Shreveport/Bossier City which is now providing an increase to our industrial base, creating jobs and providing economic growth. It is imperative you continue to provide operational and maintenance funds, funding to complete navigation structures and funding to fully develop recreation sites for us to fully realize the total benefits of this project. The following projects are all included in the authorized 'Red River Waterway Project' supported by the administration in FY96. We request the full corps capability to include these specific items.

    a. Continue funding to construct federal recreation sites at Locks and Dams 3, 4 and 5 to be cost shared with the established local sponsor. These include boat launches, comfort stations, parking facilities and security lighting.

    b. Initiate construction on the Eagle Bend Capout in pool 5 which will bring these dikes above pool stage which will be much safer for recreation boaters. Eagle Bend is within two miles of two major federal boat launch facilities. In addition three revetments must also be reinforced in Pool 1; Hadden/Ft. Derussy Revetment, Ben Routh Revetment and Saline Revetment.

Total Funds requested for FY97 (a and b above)	$ 17,100,000

2. Congress directed the Secretary of the Army to design and construct a Regional Visitor Center for the Red River Waterway Project in FY96. We request you further direct the design and construction of dual sited visitor centers in the vicinity of Shreveport/Bossier and Natchitoches, Louisiana.

* Direct the Secretary of the Army to design and fully fund construction for the dual site, visitor center. It is to be fully federal funded and these funds will be used for this project until expended.

Funds requested for FY97	
a. Natchitoches - 4,500 sq. ft.	$ 1,600,000
b. Shreveport/Bossier - 9,000 sq ft.	$ 3,000,000

3. You appropriated $1 million in FY96 for dredging to insure our many oxbows remain open to the Red River. This will ensure a high valued environmental ecosystem exists and siltation will not create lakes. Until this environmental initiative can be incorporated into a Water Resource Development Act (WRDA) bill we request funding be continued.

Funds requested for FY97	$ 1,000,000

4. I fully support the testimony of our Arkansas delegation to continue design and construction of revetments for bank stabilization under the authorized project Red River Emergency bank Protection. Specifically, we request full funding which will include Cat Island Revetment in Louisiana. These projects should have an impact to reduce dredging costs in the navigation channel in Louisiana.

5. The Aloha-Rigolette Flood Control project was in the administration's budget for FY96 and we do not anticipate any interference with continued funding for ongoing construction.

Funds requested for FY97	Full Corps Capability

6. A serious condition has developed at one of our existing revetments on the Red River Waterway, in pool 5, with an adjacent federal levee. We profess that it will be prudent to fix this problem now before the integrity of the levee is jeopardized and a much greater federal expense is incurred.

* Direct the Secretary of the Army to expend funds to reenforce the '12 mile Bayou Revetment' in pool 5 of the Red River Waterway until these funds are expended.

Funds requested for FY97	$ 600,000

7. Bossier Parish Levee

A. Loggy Bayou, Louisiana: Loggy Bayou is the final and only channel that drains a vast area of Northwest Louisiana and part of Arkansas water into the Red River. The headwaters start in Columbia County, Arkansas and the drainage area includes large parts of Webster, Beinville and Bossier Parishes in Louisiana. There are no other diversions for these waters to the Red River except through Loggy Bayou.

In 1943 the Bossier Levee District agreed to maintain the last 7.8 miles of Loggy Bayou before it enters the Red River. Conditions have changed drastically since 1943, to include: the diversion of Coushatta Bayou into the Loggy Bayou; the channel is now approximately 20 feet deeper and the Red River Waterway project has pooled the water in this section of Loggy Bayou. The Bossier Levee District does not have the equipment, expertise or funding to keep the channel maintained so there is now a real threat for increased flooding upstream. Since there have been drastic changes to Loggy Bayou beyond the control of the Bossier Levee Board and the waters drained are multi-state it is requested that the Corps of Engineers be directed to maintain the channel in Loggy Bayou under the 'Red River Waterway Project'. Request the Corps perform clearing and grubbing to initially clear out the channel in FY97.

Funds requested for FY97	$ 500,000

B. Red Chute Guideline Levee, Bossier Parish, Louisiana: This section of levee is in the Federal Levee System; however, it is questionable if it meets a minimum 25 year protection. An independent analysis using Corps of Engineers data has indicated it does not meet that standard. In the 1991 flood this was the only levee breached due to overtopping. There has been a dramatic increase in housing subdivisions, in the protected area of this levee. it is requested that the Corps of Engineers be directed to increase the level of this levee to 100 year protect as currently are the adjacent levees. Funds are to be used for this project until expended.

Funds requested for FY97	$ 3,000,000

8. We support the MRT project affecting the Red River - "Bayou Rapides Drainage Structure". Funds in the amount of $400,000 could be used for design of this project.

9. The Chloride Control Project, which is located in the far west reaches of Texas and Oklahoma, will directly impact northwest Louisiana. Completion of this project will provide dependable clean water for municipal, industrial and agricultural use without the need of expensive treatment. The irrigation value alone will greatly increase agricultural production which in turn will increase use of our water transportation system. We fully support the testimony provided by our Texas delegation.

I would now like to introduce Mr. Larry Taylor who will provide detailed testimony for water resource projects sponsored by the Red River Waterway Commission.

PREPARED STATEMENT ON BEHALF OF THE STATE OF LOUISIANA

On behalf of the State of Louisiana and the Red River Waterway District, it is my honor and privilege to address this subcommittee on the Red River Navigation Project. Navigation from the Mississippi River to Shreveport/Bossier City, Louisiana became a reality just over one year ago. We request that funding be made available for the Corps of Engineers to complete the ongoing construction projects, such as capping out the revetments for safe navigation for both commercial and recreational users, and expedite the development of recreation and mitigation projects as well as continued operation and maintenance funding for the project. With this preface, we respectfully request that you appropriate $17,000,000 for FY-97 to continue our cooperative mission of developing the Red River Valley and the Nation's infrastructure. Specific Red River Navigation projects include:

1. Recreation at Locks and Dams Nos. 3, 4 and 5 to be cost shared by the Red River Waterway Commission and operated by the Corps.

2. Eagle Bend Capout, Hadden/Ft. DeRussy, Ben Routh and Saline Revetment reinforcements in Pools 1 and 5

3. Continued Recreational Development in Pools 3, 4 and 5 as per the Corps Reevaluation Study.

4. Continued funding of $1,000,000 for maintenance dredging in the oxbows for recreation.

Bank stabilization, navigation feasibility studies and flood control projects throughout the Red River Valley are critical to our areas. We urge you to support these efforts. These valley projects are imperative to the citizens of Louisiana, Arkansas, Oklahoma and Texas. Louisiana projects that are vitally important and funding is desperately needed to construct Cat Island Revetment, Twelve Mile Bayou Revetment, the Aloha-Rigolette Project, and the Bayou Rapides Flood Control Project.

We are here again today to strongly advocate support for the Red River Chloride Control Project which is fundamental to developing usable river water for commercial, industrial and agricultural purposes. We must press forward and forge a cooperative, workable solution to this situation. The benefits to the four state area can only be fully realized through progress in chloride abatement.

Funding of the full Corps of Engineers capability is the key to these projects remaining on track and providing the benefits to the valley as well as the nation.

Our main goal is to provide support for the Congress and the Administration while we develop the Red River Valley to its full potential through a cooperative effort. Specific goals are supporting our neighboring states in their project needs and continuing our strong development efforts on Red River through our river ports, recreation, bank stabilization and mitigation efforts. The Red River Waterway Commission has a tremendous amount of work to accomplish in the years to come so that the overall goals of this project come to fruition.

The privilege of addressing this subcommittee is greatly appreciated.

PREPARED STATEMENT OF RONALD J. GLENN, VICE PRESIDENT, TEXAS, RED RIVER VALLEY ASSOCIATION

Mr. Chairman and Committee Members, my name is Ronald J. Glenn, Vice President, Texas, of the Red River Valley Association, and General Manager of the Red River Authority of Texas. I represent not only the Red River Valley Association and its four state area, but more specifically, the people who live and work in a 43 county area of the Red River Basin in Texas. Accordingly, we support not only the projects I speak of today, but all of the Red River Valley requests presented.

1. The Red River Basin Chloride Control Project is located in west central Texas and southern Oklahoma with a total project cost of $225 million. Sixteen million was appropriated in FY95, by the Administration, to accelerate engineering design, real estate acquisition and initiate construction of the Crowell Brine Dam, Area VII and Area IX. Due to a conflict over environmental issues raised by the U.S. Fish and Wildlife Service, completion of the SFEIS was delayed pending further study to determine the extent of possible impacts to fish and wildlife, their habitats and biological communities along the Red River and Lake Texoma. In an effort to resolve these issues and insure that no harmful impact to the environmental or its ecosystems will result from implementing the Chloride Control Project, a comprehensive environmental and ecological monitoring program is being implemented to evaluate the actual impacts of reducing chloride concentrations within the Red River watershed.

The Corps is scheduled to complete the SFEIS in May 1996. At this time the Corps will be prepared to proceed with the previous directives of the Secretary of the Army to initiate construction of the Crowell Brine Reservoir and Areas VII and IX. Therefore, we respectfully request that the Committee direct the Secretary of the Army to initiate construction of the Crowell Brine Reservoir, Area VII and Area IX. These funds will be used for this project until expended.

Funds requested for FY97	$ 50,100,000

2. The McGrath Creek Flood Control Project, a tributary of Holliday Creek, located in Wichita County, Texas with a total project cost of $11.3 million. This is a project supported by the Administration and we do not anticipate any interruption of funds.

Funds requested for FY97	Full Corps Capability

3. The Bowie County Levee Project, located along the Red River on the Texas side near Texarkana, Texas. The Preliminary Engineering Design (PED) process has been initiated and expected to be completed in FY97. Our request of funds is to complete the PED.

Funds requested for FY97	$ 100,000

4. Cypress Valley Watershed Project, a series of studies in the Big Cypress Valley region (TX) and Caddo Lake (TX & LA).

Funds requested for FY97	Full Corps Capability

5. A Bank Stabilization Demonstration Project located between Denison Dam and Index, Arkansas. There is a serious problem with the annual loss of prime farmland between the Denison Dam and Index, Arkansas. We fully support the testimony of the Oklahoma delegation to initiate a 'Sediment Transport Study' and a demonstration project using the new technique of Bendway Weirs. We believe a bank stabilization project in this stretch will greatly reduce dredging costs for the Navigation Project in Louisiana.

We appreciate this committee's support and time to consider the requests from the citizens of Texas within the Red River Valley Region.

Thank you.

PREPARED STATEMENT OF WILLIAM C. CHAPMAN, VICE PRESIDENT, OKLAHOMA, RED RIVER VALLEY ASSOCIATION

Mr. Chairman and Committee Members, I am William C. Chapman, and I live near Madill, Oklahoma, on a farm/ranch in Marshall and Johnston Counties. My father came to Oklahoma in 1915 at age 27 and lived the rest of his 94 years in this area as a farmer and rancher. His parents purchased agricultural property in Red River County Texas, in 1926, and it has remained in my family since then and is now owned by me. My family has been very interested in the progress of the Red River Valley for three generations. I presently serve as Vice-President of the Oklahoma delegation of the Red River Valley Association and am speaking today on behalf of the entire Oklahoma delegation. We believe that any federal monies spent on civil work projects are really investments in the future of our children and will return several times the original investment in benefits that will eventually accrue back to the federal government.

1. It is essential to protect the banks from cavings and erosion along the Red River below Denison Dam to Index, Arkansas. The Federal Government constantly encourages its farmers to protect our lands against all forms of erosion, so it only makes sense to be consistent. An authorized project exists; 'Red River Waterway, Index, AR to Denison Dam, TX Bank Stabilization', so the issue lies with the benefit/cost ratio. We believe that a 'Sediment Transport Study' would identify great benefits due to reduced dredging cost to the Navigation Waterway in Louisiana. There is a new technique for bank stabilization which could be allowed as a demonstration project under this authorized project. This new technique, underwater bendway weirs, have proven to be less expensive than conventional methods and be more efficient in controlling the energy of the River. Much prime farmland in Oklahoma and Texas is

lost each year to river erosion and we must investigate all avenues to correct this problem.

* Direct the Secretary of the Army, under the authorized 'Red River Waterway, Index, AR to Denison Dam, TX Bank Stabilization' to conduct a 'Sediment Transport Study' on the stretch of the Red River from Denison Dam to Index, Arkansas to determine the effect of bank caving on the Navigation project in Louisiana. In addition, the Secretary of the Army is directed to design and construct demonstration projects at two locations, on the Red River above Index, AR, using the bendway weir technique. These funds are to be used until expended.

Funds requested for FY 97	$ 2,500,000

2. We firmly believe that it is economically feasible as well as both logical and practical to bring navigation of the Red River to Denison Dam. In pursuit of that goal the completion of Locks and Dams 4 and 5 have insured the success for the development of navigation and commerce to the areas from Shreveport, Louisiana, downstream to the Mississippi River. The next phase is to extend navigation past Shreveport-Bossier City, LA to Index, AR. We fully support the feasibility study as testified for by our Arkansas delegation.

3. We want you to consider a critical project that allows us the ability to fully utilize the surface water of the Red River during almost its entire journey across the four states of Texas, Oklahoma, Arkansas, and Louisiana. At the current time the chloride content of the Red River is such that it is not usable but in a few isolated cases for municipal, industrial and agricultural uses. This is due to the presence of ten major chloride sources located on the banks or within the tributaries of the Red River in Oklahoma and Texas. We fully support the testimony of our Texas delegation for you to move this project to completion. We support the Tulsa District, Corps of Engineers, continuation of design, land acquisition and completion of the SEIS; however, construction must continue in FY97.

We appreciate this committees support and time to consider the requests from the citizens of Oklahoma within the Red River region.

IX. PLATFORMS, RESOLUTIONS AND PROGRAM OF WORK

RED RIVER VALLEY ASSOCIATION

INTRODUCTION

The Red River Valley Association is a voluntary group of citizens banded together to advance the economic development and future well-being of the citizens of the four state Red River Basin area in Arkansas, Louisiana, Oklahoma and Texas.

For the past 71 years, the Association has done notable work in the support and advancement of programs to develop the land and water resources of the Valley to the beneficial use of all the people. To this end, the Red River Valley Association offers its full support and assistance to the various Port Authorities, Chambers of Commerce, Economic Development Districts and other local governmental entities in developing the area along the Red River.

The Resolutions contained herein were adopted by the Association during its 71st Annual Meeting in Shreveport, Louisiana on February 15, 1996, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association, specifically:

- --- Economic and Community Development
- --- Flood Control
- --- Bank Stabilization
- --- A Clean Water Supply for Residential, Commercial, Industrial and Agriculture Uses
- --- Solar and Hydroelectric Power Generation
- --- Recreation
- --- Navigation
- --- Environmental Balance

The Red River Valley Association is aware of the constraints on the federal budget, and has kept those restraints in mind as these Resolutions were adopted. Therefore, and because of the far-reaching regional and national benefits addressed by the various projects covered in these Resolutions, we urge the members of Congress to review the materials contained herein and give serious consideration to funding the projects at the levels requested.

A. Lynn Lowe
President

Phil Alford Vice-President, Arkansas	Jerry Boughton Vice-President, Louisiana
William C. Chapman Vice-President, Oklahoma	Ron Glenn Vice-President, Texas

Richard Brontoli
Executive Director

Walter Lamb
Secretary-Treasurer

X. Support Resolution: Shreveport Chamber of Commerce, Shreveport, Louisiana

TRANSPORTATION - WATER

Red River Basin Chloride Control Project

ISSUE: The first comprehensive study of the water quality of the Red River basin was initiated in 1957 by the U.S. Public Health Service under the authorization of the Federal Water Pollution Control Act. It was determined that ten natural salt source areas contribute a daily average of 3,600 tons of salt per day to the river. This renders downstream waters unusable for most purposes. Structural measures to help control the chloride pollution at 8 of the 10 sites were developed by the Tulsa District, Corps of Engineers. These plans led to Congressional authorization in the Flood Control Acts of 1962, 1966 and 1970. The first structure was completed in January 1964 and the second in Many 1987. The Water Resources Development Act of 1986 authorized the construction of the remaining sites.

Approximately one-third of the project cost has been expended to date. The total project is expected to cost $303 million dollars.

Presently, the Tulsa District, Corps of Engineers, is preparing a Supplement to the Environmental Impact Statement (SEIS). Construction cannot continue until this is completed. SEIS completion is scheduled for May, 1996.

WHY
IMPORTANT: Natural mineral pollutants (primarily chlorides and sulfates) in the upper reaches of the Red River Basin are rendering downstream waters unusable for most purposes; therefore, the Red River Chloride Project is imperative in order to realize full utilization of the surface water supplies in Louisiana (as well as Texas, Oklahoma and Arkansas). More than 1,000 miles of streams in the river system are severely contaminated by naturally occurring brine and is not suitable for municipal, industrial or agricultural purposes.

The benefits of the Red River Basin Chloride Control Project will be improvements in water quality that will allow use for municipal, industrial, agricultural and recreational purposes. The added benefit will be the jobs created resulting from the implementation of the Chloride project.

CHAMBER
POSITION: We support this project in its present form and request completion of the SEIS by the project date of May, 1996. We support and encourage funding at the levels necessary to complete the remaining costs of the project by the year 2001. Construction must resume in 1996 on Crowell Brine Reservoir, Area VII and Area IX.

X. Support Resolution: Shreveport Chamber of Commerce,
Shreveport, Louisiana

TRANSPORTATION - WATER

Caddo-Bossier Parishes Port Commission

ISSUE: Development of the Caddo-Bossier Port Complex to access usage of the $1.8 billion Red River Waterway Project and to take advantage of the $68,000,000 annual transportation savings projected by the U.S. Army Corps of Engineers. Local investment through December, 1996 is $49,961,426. with private investment projected at $455,200,000 by six (6) companies. The first ground breaking, by Red River Terminals (Atlas Processing/Pennzoil Products Company and Hollywood Marine), was held January 25, 1996 for a petroleum distribution complex to be completed in October, 1996.

WHY
IMPORTANT: *Create 5,000 direct jobs, coupled with up to 15,000 indirect jobs in our communities over a 20 year period.
*To compete in a global economy.
*Lower transportation costs (annual savings $68,831,000).
*Private investment potential. More than $450,000,000 in private investment is today projected at the Port complex site.
*A multi-transportation network is now in place, with I-49, I-20, I-69 potential, Shreveport Regional Airport, three railroads, and Red River water transportation.

CHAMBER POSITION: Support the continuation of funding for Red River Waterway maintenance as presented in the FY 1997 Federal budget request in order to insure navigation to the Port of Shreveport-Bossier and to have the Red River working for each area business and citizen.

XI. Support Resolution: Shreveport/Bossier Port Commission

On behalf of the citizens of Northwest Louisiana, the Caddo-Bossier Parishes Port Commission strongly urges the Congress of the United States to allocate the necessary monies for the Red River Waterway Project for Fiscal Year 1997 so the Red River can be operated in a reliable manner for industry to use it and in order to ensure the viability of the $1.8 billion investment made over the last twenty years by the taxpayers of this country.

The Port of Shreveport-Bossier is readying for the beginning of regular operations at the Port complex site. It stands today as a longtime dream with a potential proving to exceed even the most optimistic projections. With local taxpayer investment guaranteed by a 1993 property tax, the Port's infrastructure is growing to meet the demands of a rapidly expanding customer base. Public investment in the Port complex today stands at $52,961,426. Projected investment by private business announced at this time, however, is more than EIGHT TIMES that amount, at $455,200,000.

Progress toward our goal of becoming a premier multi-modal transportation system is excellent. Attached for your information is our General Mission Statement, highlights of our 1995 Accomplishments and our 1996 program of work.

Results of these efforts should provide a sense of pride to all members of Congress who believed in the Red River Navigation Project. You recognized the possible benefits, the job-generating capabilities, the advantageous cost benefit ratios. And these are becoming reality at The Port of Shreveport-Bossier.

Mission

- To be a public stimulus for economic development in the region by providing multi-modal transportation service and infrastructure for domestic and international commerce and trade which will foster job creation, coupled with dollar investment, in and for Caddo and Bossier Parishes.

Governance

- The Port of Shreveport-Bossier is governed by the nine member Caddo-Bossier Port Commission. The Commission sets policies and regulates the traffic and commerce of the Port through Caddo and Bossier parishes. A seven member staff manages the Port's daily operations. SSA/Ryan-Walsh is the Port Operator.

Location/Size of the Port

- The Port of Shreveport-Bossier owns (1) 2,000 acres located just south of Shreveport's city limits on the west side of Red River and bordered by Louisiana Highway 1 and a Union Pacific main line rail and (2) a 10-acre site in southwest Shreveport, the Ark-La-Tex Intermodal Center. Fifty acres of the Red River port site are devoted to riverfront activities.

Facilities

- 600 foot general cargo wharf (services two standard river barges simultaneously)
- 300 foot liquids wharf (services two standard river barges simultaneously)
- 24 foot wide primary access road off of LA Highway 1
- South access road off of LA Highway 1
- 22,500 lf on-dock heavy rail with side track

- 30 ton bridge truss and crane
- 50 ton overhead bridge crane
- Coal pile/open storage
- 30,000 square foot transit shed
- 2.5 acre concrete open storage
- Truck/rail certified weign scales
- Two additional liquids wharfs to be added in 1996
- Intermodal Container Handling Freight facility has COFC/TOFC handling capabilities for container freight.

An Intermodal Port

- Committed to intermodalism (i.e. offering multiple modes of transporting cargo) from the beginning, the Port of Shreveport-Bossier gives shippers a complete range of transportation options - rail, truck and barge.

HIGHLIGHTS/1995 ACCOMPLISHMENTS

1. The first barges arrived at the Port of Shreveport-Bossier!

2. New customers announcing future location to the port complex: Bioenergy Development Corporation, Neste Trifinery Petroleum Services, Coastal Towing/Eagle Asphalt, and Red River Terminals, LLC (Atlas Processing Company/Pennzoil Products Company and Hollywood Marine) for a total projected new investment of almost $420 million and creation of 400 new jobs when their construction is completed and their operations begin.

3. Progress on Port complex infrastructure and facilities was phenomenal.
   A. Construction substantially completed:
      (1) general cargo wharf 400 lf extension
      (2) 30 T bridge truss and crane
      (3) 1+ acre coal pile/open storage
      (4) extension to main access road complete on south side
      (5) south access road
   B. Under construction:
      (1) water service: extension of lines, 2.5 million gallon elevated storage tank, and booster station
      *USDA/RECD loan for $11.95 million (40 year loan)
      formerly FmHA; largest loan in Louisiana
      (2) sewer service
      *LA DEQ sewer loan for $6.6 million (20 year loan)
      (3) 15,000 lf on-dock heavy rail with side track and truck\rail certified weigh scales
      (4) 30,000 sf general cargo transit warehouse, 2.5 acre initial hardstand, and 50 T bridge crane
      *94-95 DOTD Port Priority Projects
      (5) rail extension south to petroleum wharf and customers
      *95-96 Capital Outlay
   C. Awarded - second liquid dock (Atlas)
   D. In design - third liquid dock (Specialty), Port office building
      *95-96 DOTD Port Priority Project/dock

4. Signed contract with Ryan-Walsh Company for stevedoring services/operation of the Port, including operation of the Ark-La-Tex Intermodal Center.

5. Signed Cooperative Endeavor Agreement with the City of Shreveport for operation and maintenance of the water and sewer systems.

6. Marketing efforts included hinterland markets for the first time: first annual Port Night in Dallas/Ft. Worth held in partnership with the Port of New Orleans and a reception for transportation facilitators held in New Orleans. Produced first Port video for marketing uses.

7. Received FY 1995-96 Capital Outlay Priority One approval for $1 million for railroad extension and FY 1995-96 Ports Priority Program funding approval of $1,119,600 for additional liquid dock.

8. Foreign Trade Zone #145 expansion application completed, submitted, and in process by the Foreign-Trade Zones Board, includes Port complex site.

BOARD OF COMMISSIONERS
1996 PLAN OF ACTION

1. Construct/acquire the necessary infrastructure, facilities, equipment necessary to move cargo and operate the Port, continuing to follow adopted Infrastructure Plan through the Year 2000, adapting to the needs of customers as they occur.

2. Develop Port operations in concert with Port Operator Ryan-Walsh, filling functional gaps as needed, particularly in relation to:
   (a) Red River Port complex, including river safety/environmental concerns
   (b) intermodal transport facilitating requirements

3. Continue to pursue additional Port land expansion as needs transpire.

4. Expand tonnages for 1996 operations.

5. Maximize available financial resources, continuing to leverage local tax dollars to maximize taxpayer investment

6. Attract (1) users for Port multimodal transportation services and (2) businesses and industries for Red River Port Complex location
   (a) implement increased marketing efforts along the I-20 and I-30 corridors between Shreveport and Dallas-Fort Worth metroplex
      - continue Port Night with the Port of New Orleans in Dallas-Fort Worth
      - newspaper education campaign in targeted area
      - advertise in targeted areas (print media)
      - direct mail to targeted areas
      - contact through chambers/economic foundations within targeted areas, sponsor functions with potential Port users
   (b) continue to work closely with local Port users and area businesses
   (c) update promotional materials
   (d) continue to work with other economic development agencies
   (e) participate in regional/national business promotions of Shreveport-Bossier
   (f) facilitate foreign investment/international industrial recruitment

7. Communicate activities to all citizens of Caddo and Bossier Parishes
   (a) continue minutes mail-out
   (b) continue speaking to interested groups
   (c) print small pamphlet for distribution

8. Continue to work with other economic development agencies furthering regional economic development

9. Continue interaction with city, parish, state, and federal authorities/agencies on legislative issues of importance.

10. Continue participation in industry seminars, programs, events.

PREPARED STATEMENT OF GEORGE E. DUFFY, CHAIRMAN, GOVERNOR'S TASK FORCE ON MARITIME INDUSTRY

Summary of testimony of George E. Duffy, Chairman of the Governor's Task Force on Maritime Industry before the Senate Appropriations Subcommittee on Energy and Water Development on February 27, 1996 in reference to the following projects:

1. **MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA (CONSTRUCTION GENERAL)**
   We understand that sufficient funds are expected to be available to perform the FY 97 work on the saltwater intrusion mitigation plan and to perform design studies for a potential phase III fifty-five foot channel.

2. **MISSISSIPPI RIVER, BATON ROUGE TO THE GULF, MAINTENANCE DREDGING AND GI FUNDS FOR NAVIGATION STUDY**
   Recognizing that Congress appropriated $51,837,000 in FY 96 under O&M General, and $300,000 in GI funds for a navigation improvement study to include anchorage areas, we recommend that the Corps be funded to its full capability for these two items in FY 97.

3. **MISSISSIPPI RIVER-GULF OUTLET (MR-GO), LA, MAINTENANCE DREDGING**
   Recognizing that Congress appropriated $12,054,000 in FY 96 under O&M General,.we recommend that the Corps be funded an increased capability in FY 97 to include bank stabilization..

4. **MISSISSIPPI RIVER-GULF OUTLET, LA, NEW SHIP LOCK**
   Recognizing that Congress appropriated $3,200,000 in FY 96 construction funds, we recommend that the Corps be funded to full capability in FY 97 for the IH-NC New Ship Lock which is essential to the completion of reevaluation studies and initiation of detailed design studies.

5. **MISSISSIPPI RIVER OUTLETS AT VENICE, LA**
   Recognizing that Congress appropriated $1,645,000 in FY 96 under O&M General, we recommend that the Corps be funded an increased capability in FY 97 for continued maintenance of these critical east-west navigation channels (Baptiste Collette and Grand and Tiger Pass).

6. **INTRACOASTAL WATERWAY LOCKS, LA**
   We urge approval of GI funds for FY 97 to address the need for and the timing of the replacement of Bayou Sorrel Lock on the GIWW, Morgan City-to-Port Allen alternate route. These funds, along with FY 96 carry-over funds, will be used to continue the feasibility study.

7. **RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LA**
   Recognizing that Congress appropriated $16,673,000 for substantial completion of this vital project and $9,714,000 for operations and maintenance in FY 96, we recommend that the Corps be funded to full capability in FY 97. It is essential that completion of work already underway on this project -- ultimately to result in stimulating economic growth along the Red River Basin and increased cargo movements for Louisiana ports be funded..

Mr. Chairman:

I am George E. Duffy, Chairman of the Governor's Task Force on Maritime Industry. I am here to testify on behalf of the ports on the lower Mississippi River and the maritime interests related thereto of the State of Louisiana. I am accompanied here at the table by Captain Clifford Clayton, President of the New Orleans-Baton Rouge Pilots and Vice Chairman of the Board of Commissioners of the Port of New Orleans; Mr. Channing Hayden, President of the New Orleans Steamship Association; Captain John Levine, President of the Associated Branch Pilots; and Captain Mark Delesdernier, President of the Crescent River Port Pilots. In addition, I would like to ask other accompanying members of our delegation to stand.

The Mississippi River from the Gulf of Mexico to Mile 232 AHP is a 45-foot deep channel. The district Engineer of the U.S. Army Corps of Engineers, New Orleans District recently released the preliminary Corps' cargo tonnage figures for consolidated ports of South Louisiana for 1994. These ports are those that makeup the deepwater ports on the lower Mississippi River from Baton Rouge to the Gulf of Mexico. A grand total of 409 million tons of foreign and domestic waterborne commerce moved on this 232 miles of the Mississippi River in 1994. The deepening of the

Mississippi River several years ago certainly was a factor in the deepwater ports on the lower Mississippi River improving their tonnage statistics. Thanks to Congress and the efforts of the New Orleans District, we feel that we now are in a more competitive position with the import/export bulk ports of the world. That position of strength in trade is essential to our nation's very well-being when one considers that foreign trade has been, and continues to this day, a sustaining force behind our country's growth. Ninety-one percent of our foreign merchandise trade by volume - and two-thirds of it by value - moves in ships. With 20.4 percent of the nation's foreign waterborne commerce passing through the ports of Louisiana, the State of Louisiana has had a profound influence on employment, plant construction and access to worldwide markets.

We believe our Louisiana ports have a distinct advantage in access to foreign markets at competitive transportation costs. In order to handle the waterborne commerce, hundreds of barge lines serve our nation's inland waterways. In the lower Mississippi River region, over 100,000 barges pass through the Port of New Orleans annually, handling the waterborne commerce of the area. To carry the cargo between New Orleans and its trading partners throughout the world - serving, for example, more than 150 countries - approximately 2,500 vessels, operated by more than 60 steamship lines, call at the port in a year's time. These trading partners and percentages of trade are Europe (26.2 percent), Latin America (36.5 percent), Asia (30.2 percent) and Africa (10 percent).

It is undeniable that the New Orleans area plays a vital role in international commerce of this nation. In 1994, the lower Mississippi River (Baton Rouge to the Gulf of Mexico) handled 184 million tons of foreign waterborne commerce. Worth $29.6 billion, this cargo represented nearly 17.8 percent of the nation's international waterborne trade. Bulk cargo accounted for 90 percent of this volume, primarily the result of tremendous grain and animal feed exports and petroleum imports. More specifically, over 41.2 million tons of grain coming from 17 states and representing 51 percent of all U.S. grain exports entered the world market via the 10 grain elevators and midstream transfer capabilities on the lower Mississippi River. This same port complex received 52.9 million short tons of petroleum and petroleum products in 1994, approximately 13.6 percent of the U.S. waterborne imports of petroleum products.

Also in 1994, public and private facilities under the jurisdiction of the Board of Commissioners of the Port of New Orleans handled 59.7 million tons of foreign cargo worth $14.7 billion (included in lower Mississippi River statistics). Of this amount, general cargo tonnage totaled 10.4 million tons (major commodities: iron and steel products, rice, paper products, coffee and crude rubber). Although the volume of bulk cargo statistically dwarfs the amount of general cargo handled, the significance of the port in the movement of general cargo should not be overlooked. The Port of New Orleans consistently ranks in the top seven general cargo ports in the country. Furthermore, per ton, general cargo is very valuable to the community as it produces a greater local economic benefit than does bulk cargo.

While the port's foreign market is worldwide, its domestic market is primarily mid-America, the heartland of the United States. This heartland region currently produces 60 percent of the nation's agricultural products, ½ of all of its manufactured goods, and 90 percent of the country's machinery and transportation equipment. Waterborne commerce from this region is projected to reach 800 million tons by the year 2000.

Essential to our national economy is the continued growth and development of the lower Mississippi River regional complex. Most major trading nations of the world have deep draft ports and are in the process of developing more. With the passage of the Water Resources Development Act of 1986, United States ports are on the way to becoming more competitive in the world marketplace.

By the end of December 1988, the Corps had completed the initial construction dredging of the 45-foot channel from the Gulf of Mexico to Mile 181 AHP, thereby capturing the majority of estimated benefits attributed to the deeper channel. In fact, nine of the 10 active grain elevators and four floating grain elevators that serve the vast mid-American, agricultural hinterland are reasonably assured of a minimum safe channel depth of 45-feet. Remaining yet for total first phase completion of the project are the project mitigation features. We understand that funds are currently available for the Fiscal Year 1996 work. We urge continued support for this effort which is part of approximately $15 million in payments to the State of Louisiana to construct a pipeline and pumping stations for delivering potable fresh water to communities affected by saltwater intrusion. The State of Louisiana signed the agreement in May, 1993 which relieves the Corps from the responsibility for barging fresh water to the parish every year. The Local Cooperation Agreement for phase two dredging of the river to 45 feet from Mile 181 to Mile 232 was signed in September, 1993 allowing construction to go forward. This important project was completed in December 1994. We urge the Corps to proceed with design studies for Phase III which will allow us to proceed with the further deepening of the river to the 55-foot authorized depth.

In 1994, the Port of Baton Rouge handled 86.2 million tons to retain its position as the fourth largest port in the nation. Most ports on the lower Mississippi River are dependent upon timely and adequate dredging of the Southwest Pass to provide access to the Gulf. Judging from past experiences with spring thaws bringing higher river stages and higher rates of siltation, and recognizing that Congress appropriated $51,837,000 in FY 96 under O&M General, we recommend that the Corps be funded to its full capability in FY 97 for Maintenance of the 45-foot project channel which provides deep draft access to the deep draft ports on the lower Mississippi River from Baton Rouge to the Gulf. This funding includes monies for both dredging and repairs to foreshore dikes, repairs to lateral dikes, marsh creation and bank nourishment. Revetment construction has reduced the number and size of available deep draft anchorages. To mitigate this, we recommend that the Corps be authorized to construct new anchorages and maintain new and existing anchorages to accommodate increased ship traffic under the O&M General appropriation.

We are equally concerned with maintaining adequate depths and channel widths in the Mississippi River-Gulf Outlet Channel that is responsible for 85 percent of all container cargo in the State of Louisiana; and generates an annual economic impact of well over a billion dollars. Recognizing that Congress appropriated $12,054,000 in FY 96 under O&M General, we recommend that the Corps be funded an increased capability in FY 97 for this project. This will permit annual maintenance dredging and allow bank stabilization on the north bank. This project also provides deep draft access to the Port of New Orleans. Incidentally, in 1994, the 623 general cargo vessels calling on the MR-GO Tidewater facilities accounted for 30.1 percent of the general cargo tonnage handled over public facilities at the Port of New Orleans.

Recognizing that Congress appropriated $3,200,000 in FY 96 construction funds, we recommend that the Corps be funded to full capability in FY 97 for the IH-NC New Ship Lock which is essential to the completion of reevaluation studies and initiation of detailed design studies.

The operation and maintenance features of the Mississippi River Outlets at Venice, Louisiana are fundamental in providing safe and essential offshore support access to energy-related industries. In addition to routine traffic, Baptiste Collette Bayou is occasionally used by shallow draft vessels as an alternate route between the MR-GO and the Mississippi River. Recognizing that Congress appropriated $1,645,000 in FY 96 under O&M General, we recommend that the Corps be funded an increased capability in FY 97 for continued maintenance of these critical east-west navigation channels, Baptiste Collette and Grand and Tiger Pass.

We urge approval of GI funds for FY 97 to address the need for and the timing of the replacement of Bayou Sorrel Lock on the GIWW, Morgan City-to-Port Allen alternate route. These funds, along with FY 96 carryover funds, will be used to continue the feasibility study.

Recognizing that Congress appropriated GI funds in the amount of $300,000 in FY 96 for the Corps to initiate a reconnaissance study of the long-term improvements needed for navigation on the Mississippi River and its outlets between Baton Rouge, LA, and the Gulf of Mexico to include anchorage areas, we recommend that the Corps be funded to full capability in FY 97 to complete the reconnaissance study.

In closing, I would like to speak to one more project that deserves our attention; that is, the Red River Waterway, Mississippi River to Shreveport, Louisiana Project, providing for 236 miles of navigation improvements, 225 miles of channel stabilization works, and various recreational facilities. Recognizing that Congress appropriated $16,673,000 for substantial completion of this vital project and $9,714,000 for operations and maintenance in FY 96, we recommend that the Corps be funded to full capability in FY 97. It is essential that completion of work already underway on this project -- ultimately to result in stimulating economic growth along the Red River Basin and increase cargo movements through the Port of New Orleans be funded.

Mr. Chairman, this concludes my statement and I thank you.

I will be followed by Captain Clifford Clayton, Vice Chairman of the Board of Commissioners of the Port of New Orleans, Mr. Canning Hayden, President of the New Orleans Steamship Association, Captain John Levine, President of the Associated Branch Pilots and Captain Mark Delesdernier, President of the Crescent River Port Pilots.

AVAILABLE FROM THE PRIVATE SECTOR TO HELP RE-ESTABLISH THE NECESSARY DRAFT TO HANDLE THE DEEP DRAFT OCEAN VESSELS. THE CORPS OF ENGINEERS IS IN THE PROCESS OF REVISITING THE MINIMUM DREDGE FLEET ISSUE. WE ARE CONCERNED THAT GOVERNMENT CUT-BACKS COULD INFLUENCE DECISIONS THAT WOULD IMPEDE THE PRESENT CORPS HOPPER DREDGE CAPACITY. WE STRONGLY SUPPORT THE CORPS DREDGES, AS THEY ARE PART OF THE NECESSARY CAPACITY TO KEEP THIS RIVER SYSTEM AND OTHER RIVER SYSTEMS IN THE UNITED STATES DREDGED, WHICH ALLOWS US TO MOVE HIGH TONNAGES OF CARGO IN FOREIGN COMMERCE.

THEREFORE, MR. CHAIRMAN, WE RECOMMEND TO CONGRESS THE APPROPRIATIONS FOR FULL CAPABILITIES FOR THE CONSTRUCTION FUNDING AND THE OPERATING AND MAINTENANCE FUNDING FOR THE U. S. ARMY CORPS OF ENGINEERS FOR THE LOWER MISSISSIPPI RIVER SYSTEM FOR THE CORPS' FISCAL YEAR 1997, INCLUDING ITS FULL CAPABILITIES FOR NEEDED REPAIRS OF THE SOUTHWEST PASS PILE DIKES AND THE FORESHORE ROCK DIKES FROM MILE 0.5 AHP TO MILE 0.8 BHP.

NAMES AND AFFILIATIONS TO BE PLACED IN THE RECORD

MR. JIM ADAMS, ASSISTANT VICE PRESIDENT
AMERICAN COMMERCIAL BARGE LINE COMPANY

MR. ALAN ALARIO, PRESIDENT
ALAN ALARIO, INC.

CAPTAIN RUSSEL BELSOME, PRESIDENT
ASSOCIATED FEDERAL COAST PILOTS
OF LOUISIANA, INC.

MR. WILLIAM R. BURKE, III
BURKE-KLEINPETER

CAPTAIN C. E. CLAYTON, PRESIDENT
NEW ORLEANS-BATON ROUGE STEAMSHIP
PILOTS ASSOCIATION

CAPTAIN MARK DELESDERNIER, PRESIDENT
CRESCENT RIVER PORT PILOTS ASSOCIATION

MR. GEORGE E. DUFFY, PRESIDENT
NAVIOS SHIP AGENCIES, INC.

MR. CHANNING F. HAYDEN, JR., PRESIDENT
NEW ORLEANS STEAMSHIP ASSOCIATION

MR. GENE HYMEL, EXECUTIVE DIRECTOR
NEW ORLEANS BOARD OF TRADE

MR. STEPHEN C. JUAN, COMMISSIONER
ST. BERNARD PORT, HARBOR &
TERMINAL DISTRICT

MR. GEORGE KLEINPETER, PRESIDENT
BURKE-KLEINPETER

MR. GORDON KONRAD, PRESIDENT
BELLE CHASSE MARINE

CAPTAIN JOHN LEVINE, PRESIDENT
ASSOCIATED BRANCH PILOTS

MR. KIRK MEYERS, DIRECTOR OF INTERNATIONAL
PROGRAMS & REGULATORY AFFAIRS
NORTH AMERICAN EXPORT GRAIN ASSN.

MR. C. R. "PETE" MOORE, PRESIDENT
MISSISSIPPI VALLEY COAL TRADE &
TRADE COUNCIL

MR. LARRY NOLAND, VICE PRESIDENT
ELECTRO-COAL TRANSFER CORPORATION

MR. LEROY PHILLIPS, TREASURER
ST. BERNARD PORT, HARBOR &
TERMINAL DISTRICT

MR. GARY PRUITT, EXECUTIVE DIRECTOR
GREATER BATON ROUGE PORT COMMISSION

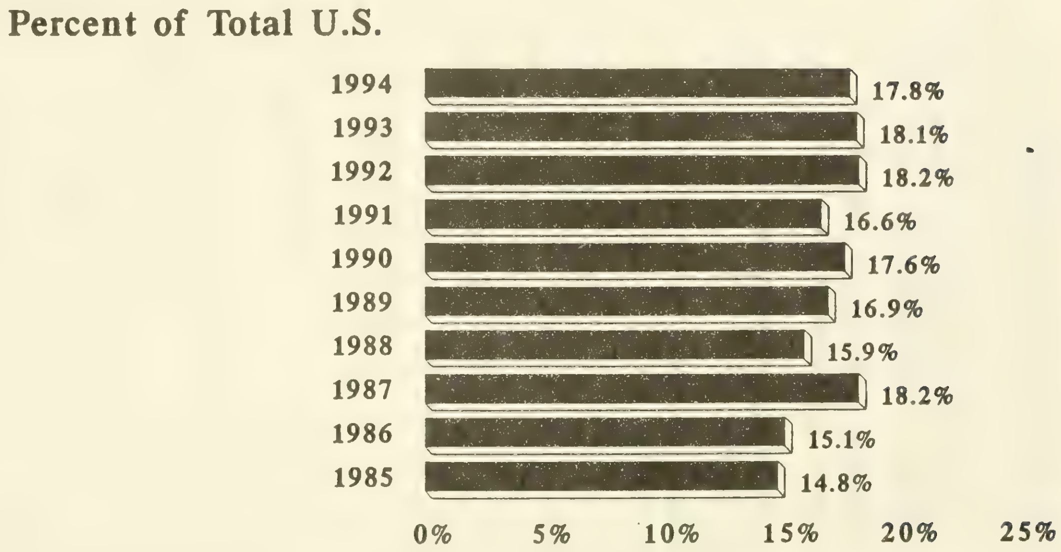
MR. IRWIN RUIZ, EXECUTIVE DIRECTOR
ST. BERNARD PORT, HARBOR &
TERMINAL DISTRICT

MR. JOHN WARE, EXECUTIVE DIRECTOR
SOUTH TANGIPAHOA PARISH PORT

MR. DOUGLAS WEBER, PRESIDENT
WEBER MARINE, INC.

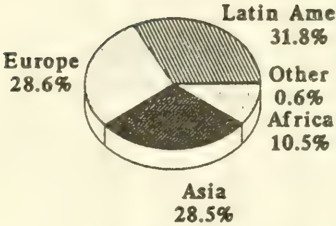
MR. ROBERT WOOTEN, VICE PRESIDENT
WEBER MARINE, INC.

LOWER MISSISSIPPI RIVER
FOREIGN WATERBORNE COMMERCE
CALENDAR YEARS 1985 - 1994

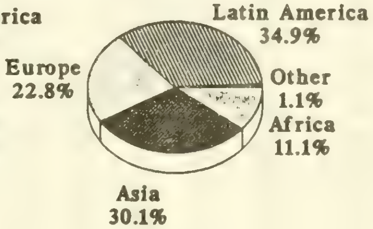


SOURCE: U.S. Dept. of Commerce

LOWER MISSISSIPPI RIVER
FOREIGN WATERBORNE COMMERCE
CALENDAR YEAR 1994



Dollar Value
By World Area



Tonnage
By World Area

Dollar Value (millions)

Principal Countries:	
Japan	$ 3,018
Mexico	1,975
Venezuela	1,720
Taiwan	1,661
Netherlands	1,498
All Others	19,704
Total	$ 29,576

Tonnage (000's of short tons)

Principal Countries:	
Japan	19,936
Mexico	18,230
Venezuela	17,670
Saudi Arabia	8,707
Taiwan	8,284
All Others	111,117
Total	183,944

SOURCE: U.S. Dept. of Commerce

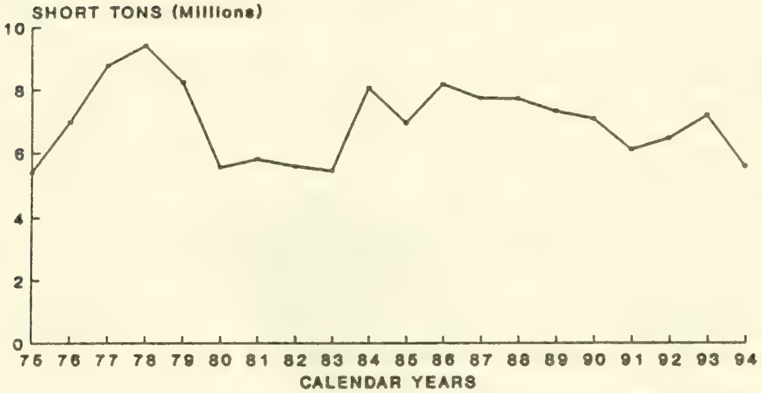
LOWER MISSISSIPPI RIVER *
PRINCIPAL COMMODITIES 1994

IMPORTS 91,781,651 Short Tons		EXPORTS 92,161,944 Short Tons	
Petroleum & Petroleum Products	57,869,348	Cereal & Cereal Prods.	41,154,128
Iron and Steel	10,333,315	Oilseeds & Oleaginous Fruit	15,202,295
Metalliferous Ores	7,702,362	Animal Feeds	12,061,819
Fertilizers	6,207,810	Coal, Coke & Briquettes	9,579,444
Nonmetallic Mineral Manuf.	1,801,773	Petroleum & Petroleum Products	7,490,018
Gas, natural and manuf.	1,555,427	Chemicals	2,118,890
Coal, Coke and Briquettes	1,259,378	Animal/Vegetable Oils	1,402,198
All Others	5,052,238	All Others	3,153,152

* FOREIGN WATERBORNE COMMERCE

SOURCE: U.S. Dept. of Commerce

MISSISSIPPI RIVER GULF OUTLET
CALENDAR YEARS 1975 - 1994
BULK AND GENERAL CARGO TONNAGE



Source: U.S. Army Corps of Engineers

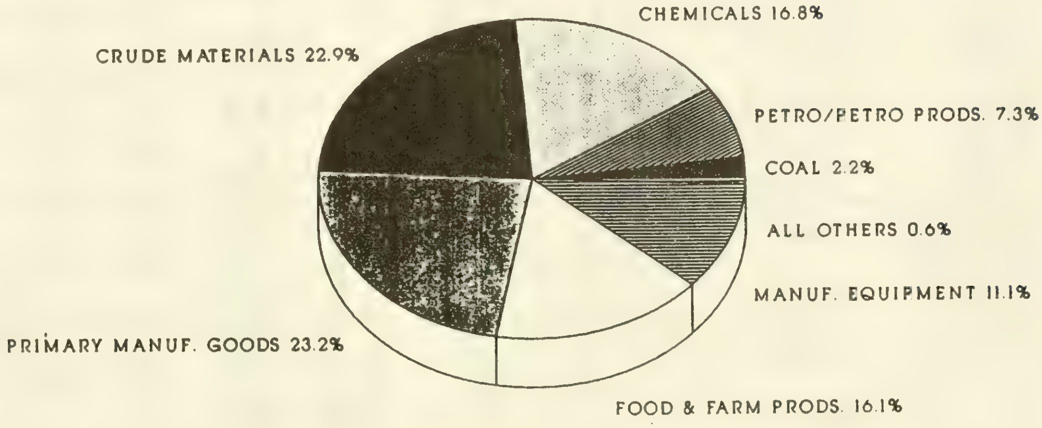
Mississippi River Gulf Outlet

Facts and Comparisons

- Responsible for over three million tons of international general cargo.
- Represents almost 30% of the total general cargo of the Port of New Orleans.
- Responsible for 85% of all the container cargo in the State of Louisiana.
- Moves more general cargo than Gulfport and Tampa combined.

Source: Port of New Orleans

MISSISSIPPI RIVER GULF OUTLET
1994 TOTAL WATERBORNE COMMERCE
COMMODITY PROFILE



**Sources: U.S. Army Corps of Engineers,
Port of New Orleans**

PREPARED STATEMENT OF JOHN LEVINE, JR., PRESIDENT, ASSOCIATED BRANCH PILOTS, THE BAR PILOTS, PORT OF NEW ORLEANS

Mr. Chairman:

I am John Levine, Jr., President of the Associated Branch Pilots, the Bar Pilots for the Port of New Orleans, Louisiana.

The Associated Branch Pilots is an Association of pilots that have been guiding oceangoing vessels into the entrances of the Mississippi River system for over 125 years. We are called Bar Pilots because we guide the ships past the constantly shifting and shoaling sand bars in the area.

Southwest Pass of the Mississippi River is the main entrance for deep draft oceangoing vessels entering the Lower Mississippi River System. It is the shallowest stretch of the Lower Mississippi River System and the area that requires the greatest effort by the Corps of Engineers to maintain project depth.

In 1995, the Associated Branch Pilots made 11,458 transits on oceangoing vessels through Southwest Pass. Of these ships, 3,991 were of 50,000 deadweight tons or greater and 677 had a draft in excess of 40 feet.

This number of heavily laden vessels calling on the Lower Mississippi River System is a direct result of the completion by the Corps of Engineers of the deepening of the channel from 40 feet to 45 feet.

This first phase has proven to be extremely well designed and well maintained by the fact that the maximum draft recommended by my Association for vessels using Southwest Pass has been 45 feet or greater, except a two and a half month period during the high river of 1994, since May 18, 1989. This is in stark contrast to the late 1970's and early 80's when we often had to recommend drafts less than the project depth due to shoaling.

To the world shipping community, this means that calling at ports on the Mississippi River system will be more profitable because larger ships can enter and carry greater amounts of cargo.

This is beneficial to the entire United States because it makes the large quantities of petroleum, agricultural, and manufactured products shipped from the Mississippi Valley more desirable due to increased profitability.

I would also like to comment briefly on the East-West navigation channels near Venice, Louisiana. Tiger Pass and Baptiste Collette provide a shorter, more direct route to Breton Sound and the Gulf of Mexico for offshore supply boats and small tugs and barges. These channels not only represent a savings in time and money for these vessels, but reduce the traffic in the main shipping channel, the Mississippi River and its passes, which is one of the most congested waterways in the country.

The Associated Branch Pilots also pilot vessels in the Mississippi River Gulf Outlet, a man-made tidewater channel 75 miles long, stretching from the Gulf of Mexico to an intersection of the Intercoastal Waterway in New Orleans.

This channel leads to the Main Container Terminals for the Port of New Orleans, the Roll On, Roll Off Terminal, the Port of New Orleans Bulk Handling Plant, and additional General Cargo Docks. For the Port of New Orleans to remain competitive in the ever growing container trade, the continued maintenance of this channel is crucial. In 1995, 700 ships called on the port using the Mississippi River Gulf Outlet.

Much is being said pro and con concerning the Mississippi River Gulf Outlet. There is, admittedly, an erosion problem in the Mississippi River Gulf Outlet, but any curtailment of shipping traffic in the channel without regard to the long term effect upon the Port of New Orleans would be disastrous. I strongly support approval of funding for both the maintenance dredging/jetty repair project and the erosion/riprap study for the Mississippi River Gulf outlet.

I would also like to make a brief statement on behalf of the Mississippi Valley Coal Export Council. Over 62 million tons of coal have been exported using the Mississippi River System during the past five years. Coal miners, tugboat captains, barge owners, shippers and many other coal related workers have benefited by using the consistent and efficient Mississippi River System. This also represents a significant contribution towards the trade balance between the United States and other industrialized nations.

Funding of the Corps of Engineers projects in the Lower Mississippi River System has proven to be money well spent. It has increased exports and imports that have benefited the entire United States. I urge your support of the funding requested to enable the Corps to continue to maintain and improve the most efficient and productive waterway system in the country.

Mr. Chairman, this concludes my statement. Thank you for the opportunity to appear before the Subcommittee. I will be happy to respond to any questions the Subcommittee may have.

PREPARED STATEMENT OF MARK DELESDERNIER, JR., PRESIDENT, CRESCENT RIVER PORT PILOTS ASSOCIATION, PORT OF NEW ORLEANS

INTRODUCTION

The Mississippi River lies at the heart of what is America, and more than any other natural feature is an unmistakable symbol of this nation.

The Mississippi River is the largest and longest river in North America. Its tributaries spread throughout the Central United States, comprising a drainage basin encompassing 41% of the continental United States - an area totaling 1.25 million square miles. The drainage basin is defined on the east by the Appalachian Mountains and on the west by the Rocky Mountains. Thirty states and two Providences in Canada have ties to the Mississippi River drainage basin.

In 1996, nearly 600,000,000 million tons of cargo will move on the Mississippi River between Minneapolis and the Gulf of Mexico. More than 400,000,000 million tons of foreign and domestic waterborne commerce moved between Baton Rouge, Louisiana and the Gulf of Mexico in 1994.

Mr. Chairman:

I am Mark Delesdernier, Jr., President of the Crescent River Port Pilots Association for the Port of New Orleans, Louisiana.

The Crescent River Port Pilots is an Association of 93 Pilots that was founded in 1908. This Association pilots ships on 100 miles of the Mississippi River and 40 miles on the Mississippi River Gulf Outlet. In 1995, our total ship movements exceeded 15,000 thousand.

The Crescent River Pilots have shoaling on the lower end of their route on the Mississippi River which required the Corps of Engineers to constantly dredge shifting sand bars.

In 1995, the Crescent River Pilots piloted nearly 12,000 thousand ships that transited Southwest Pass, the area of the Mississippi River that requires the greatest effort on the Corps of Engineers to maintain a project depth of 45 feet.

Larger vessels now calling on Louisiana Ports are a direct result of the Corps of Engineers maintaining a project depth of 45 feet in the Lower Mississippi River System.

The 45 foot Channel has generated a substantial increase in tonnage moved through the Lower Mississippi River System. The training works to control the Channel was well designed. The Corps of Engineers continue to do an excellent job in maintaining the Channel to project depth.

The International Shipping Community constantly monitor the maximum draft recommendations on the Lower Mississippi River. Large ships take advantage of the project depth and tide allowing them to transit the Lower Mississippi River carrying greater tonnage making the voyage more profitable.

Hopefully, the Congressional Delegations of all states shipping through the Mississippi River System will help with the necessary appropriations to maintain and deepen this great river which benefits the entire United States.

Additionally, I want to comment on the east-west Navigation Channels at Venice, Louisiana. Tigers Pass and Baptiste Collette provide a shorter route to the Gulf of Mexico and Briton Sound. These east-west routes are important to the oil industry in saving time but additionally the vessels that use these channels relieve some of the congestion in the main ship channel which is one of the most congested waterway in the country. Funding for dredging is very important to maintain these two channels for the reasons mentioned above.

The Crescent River Pilots also pilot on 40 miles of the Mississippi River Gulf Outlet (MRGO). This man-made channel is 75 miles long starting in Breton Sound and ending in New Orleans. This channel services the container terminals for the Port of New Orleans. Additionally roll on, roll off terminals and bulk terminals are located on (MRGO). For the Port of New Orleans to remain competitive in the expanding container trade, the continued maintenance of this channel is extremely crucial. Last year more than 700 ships called on the Port using (MRGO).

The long range plans for the Mississippi River Gulf Outlet is questioned by environmental groups. There is a salt water intrusion and erosion problem in MRGO, but any curtailment of shipping traffic in the channel without regards to the long term effect upon the Port of New Orleans would be a disaster. Container cargo is very high in value and I feel very strong about approving of funds for maintenance dredging and jetty repair projects. Additionally, I support the erosion Rip-Rap Study for the MRGO.

For members of Congress that represent coal mining states, the Mississippi River System has exported approximately 13,000,000 million tons of coal a year for several years, which makes a significant contribution towards the balance of trade between the United States and other nations.

The Corps of Engineers funding for projects on the Lower Mississippi River System is money well spent. A reliable 45 foot draft has increased imports and exports. I urge your support for funding the Corps of Engineers which will enable the Corps to continue to maintain and improve the most productive waterway system in the world.

Mr. Chairman, this concludes my statement. Thank you for the opportunity to appear before the subcommittee. I will be happy to respond to questions.

PREPARED STATEMENT OF CHANNING F. HAYDEN, JR., PRESIDENT, NEW ORLEANS STEAMSHIP ASSOCIATION

Summary of testimony of Channing F. Hayden, Jr., President of the New Orleans Steamship Association, for the record of the Senate Energy and Water Development Subcommittee on Appropriations in reference to projects of public interest on the lower Mississippi River from its mouth to Baton Rouge.

1. MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LOUISIANA (CONSTRUCTION GENERAL)
   We recommend continuation of the work on the saltwater intrusion mitigation plan and the design studies for Phase III of the 55-foot

channel. We understand that funding is expected to be available in FY97 to perform both tasks.

2. **CHANNEL STABILIZATION AND MAINTENANCE DREDGING OF SOUTHWEST PASS AND MAINTENANCE DREDGING OF THE MISSISSIPPI RIVER FROM BATON ROUGE TO THE GULF, PLUS GENERAL INVESTIGATION OF THE RIVER AND ITS OUTLETS BETWEEN BATON ROUGE, LOUISIANA, AND THE GULF OF MEXICO**
Recognizing that $51,837,000 was appropriated by Congress in FY96 under O&M General, with GI funds of $300,000 in FY96 for a reconnaissance study to improve navigation needs, we urge that the Corps be funded to its full capability in FY97 under O&M General to permit dredging and dike maintenance work, and also fund to full capability in FY97 to complete the reconnaissance study for authorization to construct and maintain anchorages.

3. **THE MISSISSIPPI RIVER-GULF OUTLET MAINTENANCE DREDGING AND BANK EROSION**
Recognizing that $12,054,000 was appropriated by Congress in FY96 under O&M General, we urge that the Corps be funded an increased capability in FY97 to maintain this channel, including bank stabilization on the north bank, and that GI funds for FY97 be approved, along with FY96 carry-over funds, to continue the feasibility phase of a bank erosion/riprap study, as well as providing anchorages to improve navigation on this channel.

4. **MISSISSIPPI RIVER-GULF OUTLET, LOUISIANA, NEW SHIP LOCK**
Recognizing that $3,200,000 was appropriated by Congress in FY96 construction funds, we recommend funding for the Corps' full capability in FY97 construction funds proposed for the IH-NC New Ship Lock, which are essential to the completion of local reevaluation studies and initiation of detailed design studies.

5. **RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LOUISIANA**
It is essential that completion of work already under way on this project -- ultimately to result in stimulating economic growth along the Red River Basin and increase cargo movements through the Port of New Orleans -- be funded. Recognizing that Congress appropriated $16,673,000 for substantial completion of the vital project and $9,714,000 for operations and maintenance in FY96, we strongly recommend that the Corps be funded to full capability for FY97.

Mr. Chairman:

My name is Channing Hayden, and I am President of the New Orleans Steamship Association. Our Association is comprised of some 53 ship owners, operators, agents, and stevedores representing the majority of the 6,000+ deep-draft vessels in foreign commerce that call Louisiana Mississippi River ports each year. We are dedicated to the safe and efficient movement of maritime commerce through the state's river ports from the Gulf to Baton Rouge. We endorse the statements made today by the Governor's Task Force on Maritime Industry, the New Orleans-Baton Rouge Pilots, the Board of Commissioners of the Port of New Orleans, the Crescent River Port Pilots, and the Associated Branch Pilots. The projects we all support impact the nation in jobs and the country's ability to compete in world markets. They should be funded as noted in our summary.

Channel stabilization and maintenance dredging in Southwest Pass are critical to keep project draft. Project draft ensures the Mississippi River's deep-water ports will handle the country's foreign waterborne commerce in the most cost-effective way possible.

For years we have urged this Committee to provide funds to maintain project draft at Southwest Pass. You have responded, and your wisdom has benefitted the entire American heartland served by the Mississippi River System. Southwest Pass was greatly restricted throughout the '70s. From 1970 to 1975 the channel was at less than project draft 46 percent of the time. In 1973 and 1974 the channel was below the 40-foot project draft 70 percent of the time. During some periods, drafts were limited to 31 feet. Fortunately, those conditions have not recurred because of a combination of factors: your help and the constant vigilance of the Pilots, the Corps, and the maritime community. The years 1990 through 1995 show a tremendous improvement in channel stability. We have been at or above project draft 96 percent of the time for vessels under 100,000 deadweight tons and 93 percent of the time for vessels 100,000 deadweight tons or greater. The funding you provided was money well spent. The repairs to the jetties and dikes and the Corps' ability to rapidly respond to shoaling have been instrumental in maintaining project.

In this regard, it is critically important that you fund the Corps to its full capabilities for needed repairs of the Southwest Pass pile dikes and the foreshore rock dikes from Mile 0.5 AHP to Mile 0.8 BHP. Both of these projects represent an investment that will cause the river to scour itself and reduce the cost of maintenance dredging.

The Pilots have taken advantage of tidal flows and other factors to recommend the maximum draft possible consistent with navigational safety. Five years ago we set a new record with draft recommendations of 49 feet for vessels under 100,000 deadweight tons and 48 feet for those over 100,000 deadweight tons, an eight- to nine-foot improvement over the old 40-foot project draft and four to five feet over the authorized project. Twelve inches to a large vessel with a loading capacity of 250 tons per inch is an additional 3,000 tons of cargo. Freight rates for grain from the Mississippi River to the Far East are around $26.25 per ton and about $17.00 a ton to Europe. Using an average rate of $21.63, each foot of draft represents an additional $64,875 in vessel revenue, or $519,000 for eight additional feet over the old 40-foot project draft. It also represents additional sales of U.S. products and increased competitiveness for those products on the world market. Industry's partnership with you has kept Mississippi River ports competitive. The current draft at Southwest Pass is 46 or 47 feet, depending on the size of the ship -- still above the authorized project.

The funding we are requesting for maintenance dredging and other works are essential for the Corps of Engineers to maintain a reliable channel and allow them to speedily respond to potential problems. This builds the confidence of the bulk trade in a reliable draft on the Mississippi River, which is critically important. Much of Louisiana's bulk trade is export agricultural products and coal. These export commodities are neither captive to Louisiana nor the United States if they can be shipped from competing countries at a consistently lower cost.

The deeper the channel, the more important channel stabilization is. By ensuring adequate channel stabilization work, the maintenance cost of the deeper channel is minimized. If recurring maintenance dredging can be minimized by investing in stabilization, then the investment is cost effective. The faster the 45-foot project is stabilized, the faster and greater the benefits of reduced O&M costs will be realized.

Funds are also needed for dustpan dredges to work the crossings above New Orleans. These crossings control the draft to eight of our ten major grain elevators, plus many mid-stream loading facilities. This area caters to the bulk trade and must have a stable channel depth that coincides with the depth at Southwest Pass. Only two dredges in the world are available to maintain the deep-draft crossings between New Orleans and Baton Rouge. (One to two more may be needed to reliably maintain the new 45-foot channel above New Orleans.)

The Corps of Engineers is studying the makeup of their "minimum fleet"--the number of dredges the Corps owns and operates. Corps-owned dredges working the lower Mississippi River are the hopper dredges WHEELER, MACFARLAND, and ESSAYONS, and the dustpan dredge JADWIN. The WHEELER and MACFARLAND, and from time to time the ESSAYONS, provide a much-needed capacity and immediate response to keep Southwest Pass opened, especially when the river is abnormally high. To reduce government hopper dredges may drastically diminish the Corps' ability to maintain reliable project dimensions and adversely affect our country's standing in world bulk markets. The JADWIN is one of two dustpan dredges *in the world* capable of working the crossings between New Orleans and Baton Rouge. The loss of this dredge could close the upper river to deep-draft ships, causing serious economic repercussions.

For all of the above reasons, we request full funding for the mitigation features of the 45-foot project and for O&M General.

In December, 1994, the Corps completed the 45-foot deep channel to the Port of Baton Rouge. It minimizes past problems of different loading criteria for the ports on the lower Mississippi River. Proper maintenance will now provide for draft uniformity and avoid confusion to foreign shippers and ocean carriers when negotiating charters. This will provide a better posture to promote U.S. export trade through Louisiana, and adequate federal maintenance funds to keep the channel open must be available. In addition, the Corps needs authorization to construct and maintain anchorages to improve safety. Over the years, revetment work and changes in the river itself have caused serious negative impacts on our anchorages. Therefore, we encourage funding to full capability in FY97 to complete the reconnaissance study to improve navigation needs on the Mississippi River and its outlets between Baton Rouge, Louisiana, and the Gulf of Mexico.

The growth of the Port of New Orleans depends, in large measure, on the Port's container and other facilities on the Mississippi River-Gulf Outlet. This channel has been severely restricted in depth and width. The funds you have provided have allowed the Corps to improve the channel considerably. Despite the Corps' best efforts, the channel width is still limited primarily because of erosion. This seaway has a project depth of 36 feet. For safety reasons in this narrow channel, restrictions apply to vessels with a draft of 30 feet or more. Such vessels cannot meet or pass in certain areas of this channel, causing delays to the tightly scheduled container traffic using the Mississippi River-Gulf

Outlet. These specialty vessels serving the Port's facilities are becoming larger. This channel, with less than stable full project dimensions, causes problems for larger vessels, reducing our ability to grow with the trade.

To improve safety on the Mississippi River-Gulf Outlet, we request Congress appropriate the Corps' full capability for the Mississippi River-Gulf Outlet. In addition, to reduce or eliminate transit restrictions and delays, holding areas or anchorages should be dredged so large ships can transit without closing the channel to other traffic. There is also the need to resolve the bank erosion problem in this channel. This could reduce cost over the long haul, enhance safety, and be environmentally beneficial. We urge approval of the Corps' full capability in GI funds for a Mississippi River-Gulf Outlet bank erosion/riprap study.

With facilities located on both the Mississippi River-Gulf Outlet and the Mississippi River, an adequate route between the two is essential for efficient transit between these facilities. The shortest route is an inefficient, antiquated lock built in the 1920s with a width of 75 feet and limited to a depth of 30 feet. Its maximum capacity has long been exceeded. The average waiting time for passage through the lock has increased from 8½ hours in 1985 to about 12 hours at present; however, we understand that waiting time can be more than a day in some instances.

A much larger ship lock is necessary to accommodate today's traffic. We urge that Congress provide the Corps' full capability for this project. This is important if this project is to be completed. Any delays are unthinkable since the new lock is long overdue. Thus, we recommend funding for the Corps to its full capability in FY97.

The Red River Waterway, Mississippi River to Shreveport, Louisiana, Project is directly related to our Port. The continuation and completion of this work will stimulate the economy all along the Red River Basin with jobs and additional international trade. This stimulated trade will service the Port of Shreveport and the ports on the lower Mississippi River, providing needed growth and benefitting the states of Louisiana, Texas, Oklahoma, and Arkansas, which are served through the Shreveport distribution center. Therefore, we strongly recommend that the Corps be funded to full capability for FY97.

In closing, we should focus on ways to use budgeted Corps' funds more effectively. In some past years, the New Orleans District has not expended all appropriated funds available from the Mississippi River Navigation Project because nature was unusually kind. In such years, the Corps should have the flexibility to use already appropriated funds for other worthwhile projects in the District. We recommend clarifying that the appropriation includes the following work within the Corps' budget when funds become available:

- To create and enhance wetlands, mine sediment from Pass A Loutre and the Pilottown Anchorage. Each 800,000 cubic yards of material dredged would create 115 acres of wetlands and enhance 256 more. In the process, much-needed Pilottown Anchorage at fog-prone Head of Passes would be dredged to accommodate the increasing number of deeply-ladened ships attracted by the 45-foot channel.
- To maintain the deep-draft navigation channels more efficiently, conduct research studies on prototype dredging techniques. Experimental dredging would not substitute for routine dredging but would allow for such things as testing dustpan dredges and new private equipment, such as the dredge BEACHBUILDER, in Southwest Pass and the crossings above New Orleans.
- To mitigate the encroachment of protective levee revetments on anchorages, construct and maintain new anchorages to accommodate deep-draft ships.

We cannot emphasize enough that these projects would be accomplished within the Corps' budget and only when resources are available. These authorizations should be effective for FY96 and all subsequent years, and we strongly urge your support for the more efficient use of Corps' funds with the New Orleans District.

PREPARED STATEMENT OF CLIFFORD CLAYTON, VICE CHAIRMAN, BOARD OF COMMISSIONERS, PORT OF NEW ORLEANS

Mr. Chairman.

I am Clifford Clayton. Vice Chairman of the Board of Commissioners of the Port of New Orleans. I want to support and endorse fully the statement of Mr. Duffy. In the metro New Orleans area, almost 52,000 jobs are directly supported by the Port's operations. I especially want to recommend that you fully fund the Corps' FY 1997 capability for initiation and completion of detailed design studies of the IH-NC Lock.

SOUTHEAST U.S. WATER RESOURCE PROJECTS

LETTER FROM GOV. FOB JAMES, JR., STATE OF ALABAMA

The Honorable Pete V. Domenici, Chairman
Subcommittee on Appropriations for
Energy and Water Development
United States Senate
Washington, D.C. 20510

February 27, 1996

Dear Mr. Chairman:

Thank you, for the opportunity to provide our views concerning the Federal water resources activities and projects in Alabama. I join with the Tennessee-Tombigbee Waterway Development Authority; the Warrior-Tombigbee Development Association; the Coosa-Alabama River Improvement Association; the Tri-Rivers Waterway Development Association; the Tennessee River Valley Association and others in support of the continuation of Federal water resource projects in Alabama.

Our state and Nation have been blessed with water resources which lend themselves to the development and use for the benefit of our citizens Water resource developments in Alabama include: the deep harbor and extensive port facilities at the Port of Mobile, providing export opportunities for the region and nation's products; the Tennessee-Tombigbee Waterway providing a vital connecting link to the inland waterway system and the heartland of our nation, the Warrior-Tombigbee Rivers waterway providing opportunities to utilize our abundant coal resources for our domestic use and export of steel, pipe, and other products; the Coosa-Alabama and the Chattahoochee-Apalachicola waterway providing the opportunity for development, transportation of natural resources, agricultural and forest products; the Tennessee River waterway providing a vital transportation link in the Tennessee River Valley of Alabama; and the Gulf Intracoastal Waterway providing a vital waterway link to the ports of the Gulf of Mexico.

All of the waterways in Alabama are connected to and are an integral part of, our national inland waterway transportation system providing a conduit for the economical and safe movement of commerce.

I respectfully request your consideration and assistance by providing the federal funding necessary for the full time operation of the federal waterway facilities and projects in Alabama. The federal support is necessary to ensure the continuation of these projects and to allow for use of these important facilities, both public and private. The federal funding, while an essential element, however, represents only a portion of the investment and commitment necessary to utilize these resources. A combination of local investment, both private and public, is also necessary to gain benefits for our citizens.

On January 3, 1992, the States of Alabama, Florida, Georgia, and the U.S. Army Corps of Engineers signed a Memorandum of Agreement (MOA) concerning interstate water resource issues in the Alabama-Coosa-Tallapoosa (ACT) and the Apalachicola-Chattahoochee-Flint (ACF) River Basins. This agreement will terminate on September 30, 1996. The MOA temporarily set aside the interstate dispute between the parties, while Alabama, Florida, Georgia, and the Corps of Engineers jointly participate in the ACT/ACF Comprehensive Water Resources Study. This study will provide information which will assist in an understanding of the capabilities of the water resources to meet the forecast needs of the region for the foreseeable future. It should also provide tools to evaluate water management options to meet future demands with the finite water resources Hopefully, the study will also recommend an appropriate and agreeable management structure for the ACT and ACF basins. We anticipate this study will provide a basis for a better understanding for our water resources resulting in negotiations that provide an equitable sharing of interstate water

With the continued endorsement of the Subcommittee in providing the funding necessary for the federal water resource projects in Alabama, I believe we can successfully address the complex issues facing us and best utilize these water resources to the benefit of the Nation.

Thank you, and the other members of the Subcommittee, for your support of the federal water resource projects and activities in Alabama and the nation.

PREPARED STATEMENT OF SHELDON L. MORGAN, PRESIDENT, WARRIOR-TOMBIGBEE DEVELOPMENT ASSOCIATION

The following is a summary of the funding items for the U. S. Army Corps of Engineers for FY97 to meet the needs of the Warrior-Tombigbee Waterway, and which we ask the Committee to approve:

Warrior-Tombigbee Waterway	
Operations & Maintenance Funds included in Corps'Budget Request (3% under level funding)	$16,315,000
Funds for Additional Capability for O&M, not included in Corps' Budget Request	4,650,000
Total O&M Funds Required	$20.965.000

Other needs allied to the Warrior-Tombigbee are:

Mobile Harbor	
Operations & Maintenance Funds, included in Corps' Budget Request (Level Funding)	$17,780,000

We wish to highlight the item identified above as "Additional Capability". Since funds for this item would not normally be included in the Corps' Budget Request, it is not likely that the committee has been informed of the essentiality of funding for this particular Additional Capability. In the absence of the Corps FY97 budget information at this time we are requesting the additional funds for continuing projects. We emphasize the need for additional O&M Capability funds if we are to have an adequate current year program, and to support on-going projects designed to improve safety and efficiency and to reduce future costs. Projects to be funded from this request are continuing projects under the 20 year long range plan for improving the BWT, including certain equipment needs for handling emergencies, upland disposal sites which, when implemented, help reduce annual dredging costs, mooring cells and other improvements.

I am Sheldon L. Morgan. President of the Warrior-Tombigbee Development Association. Our members represent a broad cross-section of shippers, carriers, and the general business community in the Warrior-Tombigbee basin in Alabama, and nearly a dozen other states. The Association began in 1949 to work for the redevelopment of the Warrior-Tombigbee Waterway System. Construction of its original 17 locks and dams began in the late 1870's, and completed in 1915. The navigation system provided by these locks and dams had gradually deteriorated and, following World War II, the annual tonnage had leveled off at 2.5 million tons, due to the condition and limited capacity of the obsolete locks. The Association began in 1950 to work with Alabama's

Congressional Delegation and the Army Corps of Engineers to plan for modernization. Five new locks were built between 1954 and 1975. The last remaining old structure (Oliver Lock and Dam) was replaced in 1991 - the first under the Water Resource Development Act of 1986. The Warrior-Tombigbee Waterway now has modern and standard sized locks throughout its length. These six new locks replaced the 17 old, turn-of-the-century locks, and today, this system represents a most noteworthy example of the positive impact of the water resource development program. The most persuasive evidence of the validity of this project and the wisdom of those who made it possible comes from the record compiled during and following the investment in its redevelopment. During the economic studies which justified these investments, it was projected that by 1980, the Waterway would carry some eight million tons annually, producing a positive benefit to cost ratio. These levels were reached in 1966 and, by 1980, twice the projected tonnage was being moved. Traffic has since reached 24 million tons annually, a level three times that which had been projected. Clearly this has been a valid investment in infrastructure.

Subsequently, due in large part to the federal investment in this waterway, several billion dollars have been invested by industry, agriculture and other non-Federal agencies, providing thousands of jobs. For example, the Alabama State Docks, as a result of a $300 + million expansion program, now offers the most advanced export coal handling technology available in this country, along with similar improvements for handling grain, bulk materials, steel and forest products. It is interesting to note that the investment by this one local agency exceeds the total Federal investment in building all the locks and dams on the entire waterway, including the new Oliver Lock. We are asking for the continuation of federal investments which have paid off many fold. The coal handling facility is being further expanded at this time, representing an additional $14 million investment.

This Waterway must continue to be efficient and reliable if its users are to remain competitive in world markets. Shipments of ore, steel, and related products have increased because of the new and modern U. S. Steel facilities, and a new mill at Tuscaloosa which is already being expanded. The efficiency and modernization of the waterway have been important factors in U. S. Steel's continuing investments to modernize its Fairfield mill. Fairfield is now again one of the bright stars in the USX crown. Recent investments substantially exceed $1 billion. The new Tuscaloosa steel mill surpassed $100 million in initial investment, and an additional $154 million is now underway. This mill utilizes the river southbound for export, as well as northbound for raw materials and domestic sales of finished product. Hence there is a favorable impact on the balance of payments which will be further enhanced by the current expansion. Recently, British Steel announced a $100 million project at Mobile to ship production on the Black Warrior-Tombigbee to Tuscaloosa.

Major facilities for mining interests, forest products and marine equipment account for well over another $1.5 billion in recent investment. A new underground coal mine alongside the Warrior River has begun operation with a planned annual production rate of some four million tons. This will be among the largest underground mines in the United States. It is a world class facility and its low sulphur coal will move through an adjoining barge loading facility. There are new facilities at the Port of Mobile, which handle more forest products than the total handled by all other Gulf Coast ports. The efficiency and reliability of the waterway are key factors in the development and competitiveness of these facilities, upon which thousands of jobs depend.

These are but examples of how this waterway is so central to the economy of this entire area, impacting both domestic and international markets. Attached with this statement are letters further highlighting this importance. These represent a broad cross-section of the economic heartbeat of an entire region. Throughout these statements you will find repeated references to the importance of confidence in the waterway to the willingness of business and industry to continue to invest in our area and of their customers to depend on its reliability for the movement of their products. Please note the wide range of interests represented by these statements: financial institutions; public utilities; port facilities; coal mining, both deep and surface; manufacturers; suppliers; marine interests; and general business.

We are hopeful the President's recommendation for O&M funds plus some add-ons for additional capability be provided for the Warrior-Tombigbee Waterway. This would be realistic funding which we will support as absolutely essential to day to day activities of the O&M program, and with good management it will allow for the continuation of several on-going projects which are near the point of culmination, following several years of investigation, design and now beginning the actual work. These projects address long-standing problems and have required extensive research and coordination and reflect excellent teamwork by the Corps and the industry. But for the support of this committee, they would not be nearing reality. I wish to emphasize that this level of funding is the minimum essential level.

Mr. Chairman, realizing you and our dear friend, Mr. Bevill, have stated this is your last hearing for us, we must say it has been a labor of love. Industry and the Corps of Engineers in the Mobile District have developed a true partnership and enjoy the finest of professional and mutually supportive relationships. From this have come both short and long range programs which have provided a basis for orderly progress toward keeping the Waterway efficient and reliable. The funding requirements to which I have referred stem from work we need to continue now under these programs. I respectfully repeat that the performance of this waterway in successfully handling a level of tonnage some three times the projections made during its design, attest to your foresight and support. None of our projects could have come to fruition without the staunch support of this committee and its leadership.

To summarize and close our testimony, the Warrior-Tombigbee Waterway is a classic example of the positive aspects of the Civil Works Program. The Congress has seen its potential and has supported its development. And now the project continues to demonstrate its worth. Investment and expansion continue locally.

During the severe drought in 1988, this waterway operated normally and with the Tennessee-Tombigbee connection provided an alternate route for cargo unable to move otherwise. There are large, national carriers now operating regularly on the Warrior-Tombigbee and Tennessee-Tombigbee as a result of their 1988 experience.

This appeal by the Warrior-Tombigbee Development Association for funding Operations and Maintenance of the Black Warrior-Tombigbee Waterway System by the Congress for FY97 is being made without knowledge of the President's budget recommendations. Normally, the Administration's budget will have been presented by the time the Subcommittee holds its hearings for public testimony. Since this is not the case, it is necessary to consider the historical records of the Corps of Engineers in maintaining navigation in past years as well as the important infrastructure projects which have been deferred for one reason or another. Those projects deferred are elements of a long range strategic plan by this Association and the Corps developed over time to improve the efficiency and safety of the Waterway.

The Warrior-Tombigbee Development Association request for Operations & Maintenance funding in FY97 for the Black Warrior-Tombigbee Waterway in the amount of $16.3 million. This is 3% under level funding (an administration goal) for the normal O & M work, this should keep navigation capability at a minimum level. However, additional capability of the Corps is important to the continuing improvements that have been deferred. Unfortunately, we did not request additional capability last year. Those include upland disposal sites, mooring cells, certain equipment at locks and other vital improvements totaling $4.6 million. Therefore, our request is for a total of $20,965,000 for FY97.

LETTER FROM JAMES A. VANN, JR., PRESIDENT AND CEO, ALABAMA ELECTRIC COOPERATIVE, INC., ANDALUSIA, AL

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

February 1, 1996

RE: FY97 Corps of Engineers Funding for the Warrior-Tombigbee Waterway and the Mobile Harbor

Dear Mr. Chairman:

On behalf of Alabama Electric Cooperative, Inc. (AEC) and its member owners, I request your continued support for the FY97 Corps of Engineers' funding for the Warrior-Tombigbee Waterway and the Port of Mobile. The enclosed statement explains AEC's interest in these projects and our increasing use of them to transport coal to our Lowman Power Plant via barge. The benefits of low-cost coal transportation to our plant accrue to our member systems and in turn to their individual electrical customer-owners, who number approximately 280,000.

Please give your support to the Corps of Engineers' budget requests for the Warrior-Tombigbee Waterway and the Port of Mobile. We sincerely appreciate your continued support in this matter and in other issues related to the rural electric program.

Background Information

Alabama Electric Cooperative, Inc. (AEC) is a wholesale power supplier for 21 member-owners located in central and south Alabama and northwest Florida. The member-owners serve over 280,000 consumers. AEC operates the Charles R. Lowman Power Plant, located at Milepost 89.5 on the Tombigbee River, as well as a compressed air energy storage plant, the McIntosh Plant which impacts the amount of coal required at the Lowman Plant. Also, AEC has a site on the Black Warrior-Tombigbee River which is a possible location for a future base-load fossil fired generating plant.

Statement of Interest and Support

AEC's primary electric generating plant, the Lowman Plant, is located on the Tombigbee River near Jackson, Alabama. The Black-Warrior Tombigbee Waterway (BWT), the Tenn-Tom Waterway, and the Port of Mobile are vital to our delivery of coal economically and efficiently to this plant. During calendar year 1995, we shipped 874,044 tons of coal via the BWT and for 1996 we have purchased a total of 1,100,000 tons of coal which will be delivered via the Tenn-Tom Waterway and the BWT.

Because delivered coal cost is such an important factor in our ability to maintain competitive rates to our member-systems, AEC supports the Warrior-Tombigbee project and level funding in the Corps of Engineers' budget request. In addition, AEC supports the critical needs identified by the Corps which were pre-empted from last year's budget.

In addition to the obvious dependency which AEC has upon the BWT, there are benefits to our region and our end customers as a direct result of a viable BWT waterway and the Port of Mobile. These systems provide an invaluable link between our region and the world markets. As such, they stimulate the region's economy, provide jobs and help reduce the trade deficit.

Specific Benefits of the Warrior-Tombigbee Waterway and the Port of Mobile to AEC

The amount of coal moved to AEC's Plant Lowman by barge on the BWT for the past five years is as follows:

Year	Tons
1991	1,000,570
1992	1,114,742
1993	866,731
1994	1,077,485
1995	874,044
Total:	**4,933,572**

The savings in transportation costs represented by the above tonnage exceeds $20 million.

AEC plans to move a minimum of 1.1 million tons of coal via the BWT in 1996, and we project our usage of the waterway to remain at this level or increase in the next ten years. We have evaluated imported coal on several occasions, and the economics have been improving. Thus, we see the potential for the use of the Port of Mobile in conjunction with the BWT in delivering coal for our future needs.

Statement with Regard to Appropriation Amounts

AEC supports the appropriation of $16.3 million for Operation and Maintenance in the Corps of Engineers' FY97 Budget. We view this as a minimum requirement in that this level of O&M funding is necessary to cover the minimum expected needs for FY97 according to the Warrior-Tombigbee Development Association, of which AEC is a member. Further, this amount represents a 3 percent reduction in the requested amount from the previous year's budget request by the Corps.

In addition, the Corps has the opportunity to move forward on projects which have been deferred over the past two years. Since there are no new construction needs for the BWT, AEC supports funding of these projects which total $4,650,000.

AEC also supports the appropriation of adequate O&M funds for Mobile Harbor.

Conclusion

We appreciate the opportunity to submit a statement on behalf of our member-owners in central and south Alabama and northwest Florida pertaining to the benefits of the BWT waterway and the Port of Mobile. AEC and its member-owners fully support the Corps of Engineers' 1997 budget request for $16.3 million in operations and maintenance funds for the BWT waterway, as well as the appropriation of an additional $4,650,000 in funds for deferred projects which the Corps is in a position to complete. While we are well aware of budget constraints, we believe these projects should be funded at these levels to assure a viable transportation system. With the money that has already been spent in construction of the BWT transportation system, proper funding for operations and maintenance is, in our view, prudent management of what is undoubtedly a national asset.

LETTER FROM TIM MCCOY, PRESIDENT, ALABAMA LAND AND MINERAL CORP., ABERNANT, AL

January 29,1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

Dear Chairman Domenici:

Alabama Land and Mineral Corporation is a coal mining company with coal mines and transportation facilities located in Jefferson, Tuscaloosa, Bibb, and Walker counties in Alabama. In 1996, our 150 employees will produce approximately 1.3 million tons of coal to be marketed to customers in both the domestic and export marketplace.

Transportation of coal is an important consideration for Alabama coal producers. The extensive transportation system in effect within the state makes Alabama's coal resources even more attractive. Although Alabama has four navigable River Systems, the Black Warrior-Tombigbee River System is the principal system for coal shipments by water within the state. Almost every part of the productive Warrior Coal Basin is connected to the Port of Mobile by waterways providing barge access. Alabama Land and Mineral Corporation operates a barge coal loading facility on the Warrior River in Walker County, Alabama. This facility loads one-half million tons of coal annual on barges to be shipped down river to power plants along the waterway or the Port of Mobile.

The Alabama State Docks at the Port of Mobile operates the McDuffie Coal Terminal which is the largest on the Gulf Coast and one of the most efficient coal handling facilities in the United States. Its annual operating capacity is in excess of 20 million tons. The Port of Mobile is served by more than 100 steamship lines, with connections to major ports in Latin America, United Kingdom, Europe, Mediterranean, Africa, Asia, and the Pacific.

In order for our company to be competitive in the World Coal Market, we must have access to a waterway system, such as the

Warrior-Tombigbee System and the Port of Mobile facility. Alabama Land and Mineral Corporation has joined with the Warrior-Tombigbee Development Association in an effort to improve the efficiency and reliability of the Warrior-Tombigbee Waterway. It is essential that the proper appropriations of funds be made for the operation, maintenance, and improvement of the Warrior-Tombigbee Waterway System. Without these funds the efficiency and reliability of the waterway will be degraded, causing the energy trade deficit to continue to rise in the form of lost revenue, taxes, economic opportunity, and jobs for Alabamians. Your committee should make an effort to reverse this energy trade deficit by helping establish Alabama as a leading exporter of coal. Alabama Land and Mineral Corporation strongly supports the appropriation of $16.3 million in operation and maintenance funds for the Warrior-Tombigbee Waterway.

LETTER FROM BILL M. GUTHRIE, SENIOR EXECUTIVE VICE PRESIDENT, ALABAMA POWER CO., BIRMINGHAM, AL

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

February 8, 1996

Dear Senator Domenici:

The Warrior-Tombigbee Waterway is vital to the economic health of Alabama. The state's water transportation system must be efficient and well-maintained for the basic industries, such as mining and heavy metals, to provide a sound economic base for the state and for Alabama to enjoy economic growth.

Alabama Power Company's continued interest in the Warrior-Tombigbee Waterway is two-fold. First, our business is dependent on the general economic health of the state; and, second, we are a primary user of the waterway. For over three decades, we have used economical water transportation to deliver coal to two of our major electric generating plants.

Four of Alabama Power Company's seven fossil-fueled, electric generating plants are located on the Warrior-Tombigbee Waterway system. Coal from the Warrior coal field is delivered to locations near the coal field and loaded into barges for shipment to two generating plants in the southern and central parts of Alabama. The 1,525-megawatt Plant Barry in Mobile County, which began operation in 1954, is supplied primarily by the Warrior-Tombigbee Waterway, as in the 500-megawatt Plant Greene County near Demopolis. Also a portion of the coal requirements for the 2,640-megawatt Plant Miller in Jefferson County is delivered using the waterway.

Adequate funds for operation and maintenance must be made available for the Corps of Engineers to continue efficient operation of the waterway and to avoid expensive and unnecessary interruptions to river traffic. While we fully support the appropriation of $16.3 million in O&M funds, the Corps has additional capability to get underway on these projects which have been deferred over the past two years. They are vital to continuing the improvements year to year which ultimately will bring the waterway efficiency to an expected level. These projects total $4,650,000.

Alabama Power Company received 6.4 million tons of coal in 1995 which were transported on the Warrior-Tombigbee Waterway. This represented over 31 percent of the 20.2 million tons used in generating units operated by Alabama Power Company. Failure to properly maintain the waterway can have a significant adverse effect on the cost of providing electric service to Alabama Power Company's approximately 1.2 million customers.

Alabama Power Company supports the collective efforts of the Warrior-Tombigbee Development Association, of which it is a member, to obtain for the Corps of Engineers an adequate operations and maintenance budget which will insure the long-term efficient and economical viability of the waterway.

LETTER FROM ROY F. ETHEREDGE, SENIOR VICE PRESIDENT, ALAGASCO, BIRMINGHAM, AL

February 16, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Appropriations for
Energy and Water Development
United States Senate
Washington, D. C. 20510

Dear Senator Domenici:

The Warrior-Tombigbee Waterway is vital to the economic health of Alabama. The State's water transportation system must be efficient and well-maintained for the basic industries, such as mining and heavy metals, to provide a sound economic base for the State and for Alabama to enjoy economic growth.

Adequate funds for operation and maintenance is necessary for the Corps of Engineers to continue efficient operation of the waterway and to avoid expensive and unnecessary interruptions to river traffic. Therefore, we support appropriation of $16.8 million in O & M funds for the Black Warrior-Tombigbee plus adequate funds for Mobile Harbor during fiscal year 1996.

Alabama Gas Corporation supports the collective efforts of the Warrior-Tombigbee Development Association, of which it is a member, to obtain for the Corps of Engineers an adequate operations and maintenance budget which will insure the long-term efficient and economical viability of the waterway.

LETTER FROM C. WILLIAM KINZELER, II, VICE PRESIDENT, AMERICAN COMMERCIAL BARGE LINE CO., HARAHAN, LA

January 30, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

My dear Senator Domenici:

American Commercial Barge Line supports the Corps of Engineers' budget request of $16.3 million for the Warrior-Tombigbee Waterway.

Since its inception, ACBL, America's largest inland river transportation company, has utilized the Warrior-Tombigbee Waterway to convey many bulk commodities that are critical to our nation's agricultural, chemical, steel production, and power-generating industries. We have also periodically used the Waterway as emergency conveyance during periods of restricted navigation on both the Ohio River and Mississippi River systems. This alternative has prevented temporary plant shutdowns and consequent loss of production and jobs.

ACBL's use of the Warrior-Tombigbee system and the Port of Mobile is still rather anemic. This lack of activity is not a function of the system or facility, but rather focused attention on business on the main stream system. As mentioned above, we have moved significant tonnage of many bulk cargoes. Our sales and marketing group continue to research business opportunities that positively impact our company as well as the local and state's economy. Therefore, we support the funding request of $4.6 million.

ACBL appreciates your committee's consideration in reviewing this funding request. Adequate maintenance of the Warrior-Tombigbee system is imperative to support our national transportation objectives and to develop additional competitive international markets.

LETTER FROM MICHAEL P. HARBIN, C.E.D., BELL SOUTH, BIRMINGHAM, AL

February 20, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Enegy & Water Development
United States Senate
Washington, DC 20510

Dear Senator Domenici:

As Director of Economic Development for BellSouth in Alabama, my interest lies in the development of our economic base to improve the overall quality of life for each Alabamian. The infrastructure needed to build this economic base, be it waterway or electronic highways, is essential to conduct our business and commerce. The Warrior-Tombigbee Waterway and the Port of Mobile are two such projects that will have a direct impact on Alabama's economy.

We support the efforts of the Warrior-Tombigbee Development Association because we believe their efforts will lead to long-term benefits in the area of energy conservation, international trade and the improvement of the economic well-being of Alabama citizens.

I would also like to lend my support to the Corps of Engineers' request for adequate funding for the operation and maintenance of the waterways and ports.

I appreciate your taking my endorsement of these projects into consideration. I am confident the Association can count on your support as well.

LETTER FROM JAMES C. LEE, JR., BUFFALO ROCK CO., BIRMINGHAM, AL

February 14, 1996

Mr. Sheldon L. Morgan, President
Warrior-Tombigbee
Development Association
Post Office Box 2863
Mobile, Alabama 36652

Dear Mr. Morgan:

We employ approximately 2,000 people in a 3-state operation, with our headquarters in Birmingham. We fully recognize the extreme importance of the Corp of Engineers receiving proper appropriations to maintain the viability of the Tombigbee Waterway. There is no question that this waterway and the Port of Mobile does much to keep transportation costs at an affordable level.

A strong Port of Mobile, plus the Tombigbee Waterway, is a great asset for the entire South East and Mid-West area and will even become more so in the years ahead. Please continue to give us your assistance and help.

LETTER FROM LYNN SHERRILL, VICE PRESIDENT, CROUNSE CORP., PADUCAH, KY

February 21, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

Dear Mr. Domenici:

Maintenance and improvements to the Warrior-Tombigbee Waterway and Mobile Harbor are a matter of vital interest to our Company. Crounse Corporation has, since 1990, barged approximately one million tons of coal per year from the Upper Ohio Valley to locations on the Black Warrior River and Mobile, Alabama area.

In 1995, we began moving coal from the upper reaches of the Black Warrior to destinations in the Ohio Valley and hope this becomes a steady movement. We have found the Warrior-Tombigbee Waterway to be our highest cost operating area, and can ill afford to have the system deteriorate below its present level, because of reduced maintenance funding.

LETTER FROM JAMES C. LUDWIG, PRESIDENT, DRUMMOND COAL SALES, INC., BIRMINGHAM, AL

January 29, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

Dear Senator Domenici:

The Drummond Company, Inc., as the largest coal producer in Alabama, has a vital interest in the continued availability and use of the navigable waterways in Alabama. Our company's growth (and that of many others) and the economic viability of the Southeast has been positively impacted by the Warrior-Tombigbee System and the Port of Mobile. This must continue.

The company's new Shoal Creek Mine, now approaching its designed production level, has its principal shipping outlet at Mile Post 372 on the Black Warrior River. The success of this project (one of the newest and largest underground mines in the U.S.); our other existing mines and barge loading facilities now so heavily dependent on water transportation to be competitive; and the numerous associated jobs for Alabamians would be jeopardized absent the availability of an efficient, well maintained, and fully operational waterway system.

As you consider the funding needs of the Corps of Engineers, we strongly urge appropriation of at least $16.8 million for FY96 for the day to day Operation and Maintenance of the Warrior-Tombigbee system and to continue the needed improvements in the approaches to the bridges and Jackson and Naheola. We also support adequate O&M funding for Mobile Harbor. Lastly, and in addition to the above, we urge appropriation of an additional $4,650,000 for projects that have been deferred.

LETTER FROM LAWRENCE L. MERRIHEW, VICE PRESIDENT, FIRST ALABAMA BANK, MOBILE, AL

February 7, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

The economies of Alabama and the U. S. Gulf Coast are greatly impacted by the Port of Mobile and the inland waterways serving these areas. The Black Warrior-Tombigbee Waterway, is also a vital factor in this respect. It serves manufacturing, mining, and the agricultural areas, as well as industrial production facilities in western Alabama. The waterway has served as an economic stimulant for over 100 years and receives periodic improvement, bringing it to the point today, that it is a modern system linking vital areas of the economy.

There are so many vital materials that are shipped on the Black Warrior-Tombigbee System, that its overall impact is sometimes not adequately considered. For instance, most of the coal exported from Mobile is shipped down this very waterway. Therefore, it is important for adequate operations and maintenance that the amount needed as requested by the Corps of Engineers for operations and maintenance, of $16.3 million, be appropriated for fiscal year 1997. This is a 3% decrease in last year's requested appropriation, and is 14% less than the comparable figure for fiscal year 1995. This level of funding is necessary to support the day-to-day O & M program, and to continue ongoing channel improvement projects that will maintain the waterway in its current state.

We urge your support of an appropriation of $16.3 million, in O & M funds for the Black Warrior-Tombigbee for fiscal year 1997. We also request support of the appropriation of adequate O & M funds for the Mobile harbor.

An efficient and reliable waterway system is important to all of us, and certainly is a justifiable investment by the federal government. The cost benefit ratio will be matched many times over by the local investment.

LETTER FROM G. EDISON "ED" HOLLAND, JR., VICE PRESIDENT, GULF POWER CO., PENSACOLA, FL

February 5, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

Gulf Power Company is an investor-owned electric utility and a subsidiary of The Southern Company; we serve 325,000 customers in Northwest Florida. Our Company utilizes coal for over 99 percent of its total generation requirements and consumes over 3,000,000 tons per year. Over 90 percent of our coal deliveries are dependent upon waterway transportation.

In the past, Gulf Power has moved millions of tons of coal on both the Tennessee-Tombigbee and the Black Warrior-Tombigbee Waterways or through the Port of Mobile. Currently, we are importing a major portion of our requirements through the Port of Mobile. This is expected to be an important option for us as we require lower sulfur coal in the future. Also, the flexibility of purchasing coal shipped on the Warrior-Tombigbee remains a major factor in our coal procurement program. Gulf Power depends on using these waterways, therefore, we totally support the need for adequate funding to properly maintain and improve operations.

In order to provide reliable electric service at the most economical cost to our customers, Gulf must continue to receive waterborne coal shipments. In addition to ensuring that adequate fuel supplies can be transported to our generating plants, the availability of waterway systems significantly contributes to future industrial growth in our service area.

We are in full support of the efforts of the Black Warrior-Tombigbee Development Association and ask that you give your full consideration to the testimony of the Association's President concerning the need for maintenance funding for the waterway system. We urge you to approve the Corps' operating and maintenance budget request for $16.3 million to maintain the Black Warrior-Tombigbee Waterway for fiscal year 1997. In addition to the requested O&M funds, the Corps of Engineers has deferred $4.6 million of projects over the past two years, these improvements are needed to bring the waterway efficiency to its expected level. We also support adequate funding for maintaining the Mobile Harbor.

We feel that it is not only in Gulf Power's interest to support the maintenance and improvement of these waterways, but also in the best interest of the customers of our service area and the nation. The capability to transport coal and other commodities via the Black Warrior-Tombigbee Waterway and the Port of Mobile is vital to the economy of our region.

LETTER FROM ALLEN HENRY, PRESIDENT, HENRY MARINE SERVICE, INC., GULF SHORES, AL

February 22, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington. D.C. 20515

Dear Senator Domenici:

Henry Marine Service, Inc. highly supports the request for funding in order to keep the running of the Warrior-Tombigbee Waterway efficient and reliable.

Even though we are a relatively small company, sixty (60) employees, compared to larger companies such as Warrior and Gulf Navigation, the services we provide on the Warrior-Tombigbee Waterway are vital in the process of the delivery of coal to Mobile and beyond. We navigate the narrow waterways where the larger tugs cannot operate and upriver from bridges that are to low for these tugs to travel under.

We also have drydock and topside facilities in Mobile, repairing the barges and tugs that navigate up and down the Alabama waterways.

Without these waterways there would be no tugs, barges, coal, etc., therefore no jobs. Henry Marine Service depends on the waterways to provide jobs for our employees, thus providing homes, food, clothing, etc. for more than sixty (60) families from Mobile to Birmingham.

Thank you taking time to read this letter. I hope we can count on your support on this matter.

LETTER FROM WILLIAM CARR, PRESIDENT, JIM WALTER RESOURCES, INC., BIRMINGHAM, AL

February 7, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

Dear Mr. Domenici:

I would like to thank you for the opportunity to make a statement to your Subcommittee. Please accept this letter as my statement.

The Mining Division of Jim Walter Resources, Inc. currently mines 8 million clean tons of coal per year. Of that amount, nearly 60% of our production is exported. All of our export production goes through the Port of Mobile. Our payroll for 2,337 employees last year was in excess of $110,000,000 and taxes withheld and/or paid were in excess of $34,000,000. It is obvious from these facts and figures that this Company relies heavily on our waterways and port facilities and that they are of the utmost importance to this Company, its employees and the economy of the State of Alabama.

I strongly support the Corps of Engineers budget request for $16.3 Million in Operations and Maintenance funds for the Black Warrior-Tombigbee for FY 97. I also support the appropriation of adequate Operations and Maintenance funds for Mobile Harbor. Our waterways and port facilities provide economic prosperity to Alabama that is worthy of your support. Further, I support the statements and testimony to be given by Mr. Sheldon L. Morgan, President of the Warrior-Tombigbee Development Association. I believe that the value of improved efficiency and reliability of the Warrior-Tombigbee Waterway and Port of Mobile cannot and must not be underestimated.

The world coal business is at its most competitive level in history. News of any problems, especially transportation and delivery problems, is quickly spread by other coal producers around the world to the buyers to discourage purchases here. A blemish on our delivery record can have devastating, long-term effects from which we might never fully recover. Buyers lost today may never return tomorrow.

Again, thank you for this opportunity to give my comments on this very important matter.

LETTER FROM JAMES M. DECOSMO, KIMBERLY-CLARK CORP., MOBILE, AL

Feb 19, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

Kimberly-Clark (K-C), formerly Scott Paper, began operations in Alabama with the purchase of the Mobile Mill from Hollingsworth and Whitney in 1953. Including the acquisition cost, K-C has invested over $2 billion in the Mobile Plant and support operations. This investment represents an average annual capital investment of $50 million.

A significant factor in the approval of capital invested in Mobile is the cost of manufacturing pulp, which is approximately 50% wood cost. As you may well know, Kimberly-Clark's transportation system is responsible for transporting approximately 80% of the wood requirement to Mobile and is a significant component of the existing and long-term fiber procurement strategy.

For the past thirteen years, Kimberly-Clark has continuously utilized the Warrior-Tombigee Waterway, Coosa-Alabama River System, as well as the Port of Mobile. In 1983, the first year K-C shifted from truck and rail to river transportation, some 1.06

million tons of forest products were transported with two tug boats and forty barges. Due to the efficiencies and reliability of the Waterways, K-C will transport in excess of 3.5 million tons of forest products in 1996, 1.2 million of which is destined for export to International Markets. To sustain marine operations at this level requires over 20 tug boats, 150 barges and over 250 jobs directly related to operations and maintenance.

For K-C to operate on the Waterway requires operating expenses in excess of $13.2 million. These operating expenses are required to support a $28 million capital investment in wholly-owned woodyards and joint venture wood processing facilities.

With this investment in the Mobile operations and the dependence on the Waterways, it is paramount that the river channels, locks & dams, bridges and all other elements of navigation be adequately maintained, upgraded and funded to meet the existing and future demands of the waterways.

The proposed appropriation for FY 1997 Operations and Maintenance budget of $16.3 million is the minimum required to fund the planned channel maintenance programs. An additional $4.65 million is urgently needed to compensate for the last two years spending cuts which deferred/postponed planned projects. K-C fully supports the appropriation of these funds. In addition, K-C requests that the subcommittee appropriate adequate funding to support the operation and maintenance needs of the Mobile Harbor.

K-C in its entirety has been through significant changes in the last twelve months with the completion of the Kimberly-Clark and Scott merger. As a result, K-C has transitioned into a multi-billion dollar packaged products company strategically focused on diapers, personal care products, consumer tissue and away-from-home products. To continue to be the market leader, all facilities and operations throughout the world must remain competitive, from the procurement of raw materials to the satisfaction of each and every customer.

The Mobile operations have been and will continue to be leaders in the K-C world. To help insure a continued leadership position and a viable operation, future stability and growth & development in all facets of manufacturing must continually improve. To remain a sound competitor in a highly competitive industry, it is imperative that the waterways continue to be adequately maintained and upgraded to meet the challenges tomorrow brings. The Warrior-Tombigbee and Coosa-Alabama River waterways are the "Main Artery" that supports the Mobile Mill and its employees. These waterways and ports will play a significant role in K-C's future business success.

With these considerations in mind, we ask that you give the requested budgets your full support.

Thank you for your help, time and consideration in this matter.

LETTER FROM PETER E. HUBBARD, MIDLAND ENTERPRISES, INC., CINCINNATI, OH

February 7, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

I am writing to express my support for the continued maintenance and improvement of the Black Warrior-Tombigbee Waterway System.

Midland Enterprises Inc. is one of the nation's largest barge lines and is a major user of the Warrior-Tombigbee System. Last year we transported approximately 2,000,000 tons of commodities on this waterway, which is significant to the economies of the states in that region, from the points of view of both producers and consumers. Barging is a very low cost method of transportation, which translates into savings for the consumer, such as lower rates for electricity.

Another important aspect of the Warrior-Tombigbee System is that it provides the only alternative to the Mississippi River to move product to the Gulf Coast. This was extremely important during the drought year of 1988, when the lower portion of the Ohio River was closed for an extended period and the lower Mississippi River was severely restricted for approximately five months. The availability of the Warrior-Tombigbee System allowed us to continue to serve utility and industrial customers and kept those customers from having to shut down operations because they could not receive raw material.

Midland Enterprises Inc. fully supports and recommends appropriation of $16.3 million for operation and maintenance of the Black Warrior-Tombigbee System for FY96. Furthermore, we recommend additional funding to permit the Corps of Engineers to proceed with some of the projects that have been deferred over the past two years, which total $4,650,000. All of these funds are necessary to assure that the Warrior-Tombigbee System remains an important part of the Inland Waterway System.

LETTER FROM R.A. GUTHANS, PRESIDENT, MIDSTREAM FUEL SERVICE, INC., MOBILE, AL

February 13, 1996

Hon. Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

Midstream Fuel Service, Inc. enthusiastically supports the testimony to be presented to your committee on February 27, 1996 by Sheldon L. Morgan, President of the Warrior-Tombigbee Development Association, and Charles A. Haun, Chairman of the Warrior-Tombigbee Development Association. The testimony presented by these gentlemen represents the opinions and needs of those who depend on the Warrior-Tombigbee Waterway.

Midstream Fuel Service, Inc. is uniquely positioned to observe this waterway's many benefits. As a result of operating petroleum terminals, transporting petroleum products by tank barge, supplying petroleum products to the inland and international marine trade, operating support facilities for the petroleum exploration and production industry, and supply petroleum products to commercial, industrial and retail markets, Midstream is in constant contact with those whose lives and livelihood depend on, and are enhanced by, this waterway. The operation and maintenance funds appropriated by your committee are critical to the continued efficient operation of this vital waterway which serves so many recreational, commercial and industrial users.

This $16.3 million appropriation request for fiscal year 1997 is less than the fiscal year 1996 request. This reduction is due, not to a reduced operation and maintenance requirement, but as an acknowledgment of the budgetary pressures on this committee. Please give careful consideration also to the request for additional funds to complete projects deferred over the past two years.

The importance of the Mobile Harbor Operation and Maintenance budget cannot be overemphasized. This harbor serves the State of Alabama, the U. S. Gulf Coast, and shipping throughout the world. We, therefore, support adequate appropriation of operation and maintenance funds to keep the Mobile harbor operable.

This opportunity to present the needs of the Warrior-Tombigbee Waterway system and the Mobile harbor is very much appreciated. Thank you for the past and future support by this committee of our nation's waterways.

LETTER FROM DEAN KELLY, VICE CHAIRMAN, MOBILE AREA CHAMBER OF COMMERCE, MOBILE, AL

February 7, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
SH-328 Hart Center Office Building
Washington, D.C. 20510-3101

Dear Senator Domenici:

This statement is presented on behalf of the 2,400 business members of the Mobile Area Chamber of Commerce in support of the FY 1997 operations and maintenance budget request for new funding for the Warrior-Tombigbee Waterway.

Our support for the request of the Warrior-Tombigbee Waterway is predicated on the fact that the cargo moving on the Warrior-Tombigbee Waterway supports the Port of Mobile and many area business. One example is the recent selection of Mobile for a $100 million iron ore processing plant with 75 new jobs. Only through our efficient transportation system and reliable waterways can these benefits to local businesses continue to be realized. The $16,300,000 request has been carefully reviewed and is a minimum figure to meet anticipated expenses and problems. We additionally support adequate funding for operations and maintenance of the Mobile Harbor.

LETTER FROM DOVELL HALEY, SUPERVISOR, MONSANTO, DECATUR, AL

February 22, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20510

Honorable Pete V. Domenici:

Please accept this letter as Monsanto's support for Corp of Engineers 1997 appropriations request for operations, maintenance and projects for the Warrior Tombigbee Waterway system.

The Monsanto Company operates a manufacturing facility at Decatur, Alabama where it produces Acrylic fiber, Nylon Intermediates and Chem Coke products, of which some of the uses are clothing, blankets, yarn, upholstery and carpets. Monsanto ships annually in excess of 190 million pounds of chemicals via barge routed on the Tennessee Tombigbee and Warrior Tombigbee Waterway systems to Monsanto's Pensacola, Florida plant. Export Coke sales are trucked to Birmingport and barged via the Warrior Tombigee Waterway system to Mobile, where it is transloaded on a ship and moved to various foreign ports. Monsanto also receives inbound raw material chemicals from the Alvin, Texas area in excess of 750 million pounds annually. Normally this material is shipped by barge, which is routed via the Intercoastal Waterway, and Mississippi, Ohio, and Tennessee Rivers to Decatur, Alabama. The Warrior Tombigbee waterway system with its access to Tennessee Tombigbee Waterway system is the alternate route and has been used extensively for inbound material movement over the past several years.

Water transportation is economically favorable and accommodates the logistics for volume movements for Monsanto. Plans are in place to increase waterway usage as Plant production volumes increase.

Your efforts on behalf of the Warrior Tombigbee Waterway System are greatly appreciated by Monsanto.

LETTER FROM GEORGE E. DUFFY, PRESIDENT, NAVIOS SHIP AGENCIES, INC., ST. ROSE, LA

February 6, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
Senate Appropriations Committee
United States Senate
131 Dirksen Building
Washington, D.C. 20510

RE: **The Warrior-Tombigbee**
FY/97 U.S. Army Corps of Engineers Budget

Dear Representative Domenici:

We request that you support the U.S. Army Corps of Engineers' Operations and Maintenance Budget of $20,650,000. for the Warrior-Tombigbee Rivers.

Our vessels and our principal's vessels carry 2.9 million tons of iron ore and 1.8 million tons of furnace coke per year with the majority bound for industries in the State of Alabama. The Port's ability to maintain its present draft has enabled us to remain competitive on the world market. The continued dredging of the

Warrior-Tombigbee allows this cargo to go through the waterway system of the Tombigbee. The U.S. Army Corps of Engineers has done an outstanding job maintaining this system.

A large portion of this cargo is for steel operating in the Birmingham, Alabama area. These import raw materials enable the steel mills to supply steel for various supplies to this nation. Some of these cargo products from the steel mills are re-exported through the Port of Mobile, which helps to reduce our trade imbalance. The efficiency and reliability of waterways commerce is essential for us to provide the raw materials necessary for our principals to meet the demands of the various markets within the State of Alabama and the United States.

We have been in operation since 1957 utilizing the Port of Mobile, the Warrior-Tombigbee and the Black River systems, and we realize the importance of tight budget control, yet the benefits on industry, commerce and trade as well as job return must be recognized. Therefore, we solicit your support and we join in the collective efforts of all those affiliated companies who realize the importance of maintaining this waterway system so that we may continue to bring in the necessary raw materials for our manufacturing industries within the State of Alabama. For these reasons, we request you to support the $20,650,000 for the Operations and Maintenance programs for FY/97.

LETTER FROM CHARLES A. HAUN, EXECUTIVE VICE PRESIDENT, PARKER TOWING CO., INC., TUSCALOOSA, AL

February 5, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

Dear Chairman Domenici:

My name is Charles A. Haun and I am Executive Vice President for Parker Towing Company of Tuscaloosa, Alabama.

We are a full service marine transportation company operating a fleet of boats and barges and several ports on the southern portion of the U. S. Inland Waterways System. We are involved in the transportation of all types of commodities including coal, stone, wood products, steel, salt, manufactured products, chemicals, and oil. We have been in operation for over fifty years.

Parker Towing Company endorses and supports fully the efforts of the Warrior-Tombigbee Development Association to improve the overall operation of this vital waterway system The Warrior-Tombigbee System and the Port of Mobile are of great importance to our company and the industries we serve Proper and adequate funding of the waterway project will ensure that more industries can rely on this energy efficient delivery system. The regions' employment and economic well-being could be adversely affected to a great degree should the efficiency of the waterway be degraded.

As a member of the Warrior-Tombigbee Development Association, Parker Towing Company emphatically supports an appropriation of $16.3 million for the Corps of Engineers for operation and maintenance of the Warrior-Tombigbee System for fiscal year 1997 and additional capability funding of $4.6 million for a total of $20,965,000. In addition, we support the Corps' request for operation and maintenance funds for Mobile Harbor.

LETTER FROM JAMES H. DARNLEY, REGIONAL VICE PRESIDENT, RYAN-WALSH, INC., MOBILE, AL

February 21, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

Dear Sir:

SSA/Ryan-Walsh is a stevedoring company that handles approximately 1.7 million tons of forestry products and 1.5 million tons of bulk cargo (coal) through the Port of Mobile on an annual basis. We directly employ forty-five (45) people which generates approximately 1.5 million dollars in salaries and additionally support 300,000 man-hours for four (4) Local ILA unions.

The Warrior-Tombigbee Waterway is a significant factor in maintaining our base business as well as for future economic development. We totally support the collective effort to improve the efficiency and reliability or the Warrior-Tombigbee. The cost efficiency of the waterway is a vital factor in the transportation inter-structure for the Port of Mobile.

Currently, the coal (1.5 million tons) that we handle through the McDuffie coal facility is totally dependent on the waterway. Consequently, if the waterway is degraded, it would cause significant reductions in the efficient handling of that cargo. It is our position the appropriation of 16.3 million dollars in O & M funds is imperative and deferred projects (totaling $4,650,000) should be a critical priority in ultimately bringing the waterway's efficiency to a level that insures future expansion and growth.

An associated issue, which is also one of serious concern to our firm, is the funding to maintain our harbor. We would submit and strongly stress that adequate O & M funds for Mobile harbor are certainly as crucial to the transportation equation for the Port of Mobile and our area's economy.

We very respectfully appreciate your consideration of this matter. As always, at your service.

LETTER FROM ANDREW A. SAUNDERS, JR., CHAIRMAN, CEO, SAUNDERS ENGINE CO., MOBILE, AL

February 13, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici,

The navigable waterways and associated transportation system in the State of Alabama is mature, economical, and successful. In the broadest sense, I ask your support for the appropriate funding for Operation and Maintenance of the Warrior-Tombigbee River system and of Mobile Harbor, because it is a solid infrastructure investment by any measure.

Our system is a rare and valuable link of the international ocean Port of Mobile with a vast inland river network through the Warrior-Tombigbee River and the Tennessee-Tombigbee

Waterway. This enormous system has strategic and economic importance at every level of consideration--national, state, and local.

Saunders Engine Company at Mobile and Tuscaloosa, Alabama is a member of a large number of firms along the system who are service providers to the vessel and barge operators in Alabama's international port and on our the river system.

Our company has been part of the maritime community headquartered at Mobile for 37 years. We have over seventy employees who are primarily engaged in this service and we are only part of a network of fuelers, repairers, and suppliers who maintain the large fleet of ships, towboats, barges, and cranes that are utilized in the total system from ocean port to inland terminals.

We ask for your full support of the Corps of Engineer's budget request for Operations and Maintenance in FY '97. This request for the Warrior-Tombigbee is expected to be level with 1996 and is in the range of $16.3 million. Also, we ask your support to fund in FY '97 certain specific maintenance projects which are critical to the efficient operation of the waterway, but which have been deferred in the past two years--these total $4.65 million.

Thank you for your consideration.

LETTER FROM JERRY L. STEWART, VICE PRESIDENT, SOUTHERN COMPAN SERVICES, INC., BIRMINGHAM, AL

February 13, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, D. C. 20515

Dear Congressman Domenici:

On behalf of Alabama Power Company, Gulf Power Company, and Mississippi Power Company, I am writing to express our support for the Warrior-Tombigbee Development Association and its president in their efforts before your committee. Because of the importance of the Warrior-Tombigbee Waterway to local, national, and international trade, the Southern electric system joins with the Warrior-Tombigbee Development Association in an effort to improve the efficiency and reliability of the Warrior-Tombigbee Waterway.

For the past twenty-nine years, Alabama Power Company, Gulf Power Company, and Mississippi Power Company have used the Warrior-Tombigbee to transport coal to their respective electrical generating plants at Demopolis, Alabama; Mobile, Alabama; Pensacola, Florida; Sneads, Florida and Biloxi, Mississippi. In 1995, through the use of contracted barge carriers, these companies moved over 4.7 million tons of coal by way of the Warrior-Tombigbee Waterway. All of this coal would have required a longer move down the Mississippi River through New Orleans. The Warrior-Tombigbee Waterway allows the barges to move down the Warrior-Tombigbee River to Mobile and other destinations. The significant importance of this capability to our system is obvious from a transportation flexibility standpoint. Additionally, the Port of Mobile is the hub of the Central Gulf Coast and the continued development of its facilities and support services is critical to the economy of the tri-state area served by the Southern electric system.

Alabama Power Company, Gulf Power Company, and Mississippi Power Company utilize water transportation because of the economic advantage to our millions of customers. Any expenditures for maintenance or upgrading which improve the efficiency and reliability of the waterway will have a positive impact on our customers. At the same time, higher cost resulting from inefficiency or the unreliability of the Warrior-Tombigbee Waterway will have a direct and adverse effect upon our customers.

It is imperative that there be a continuous program for maintenance and upgrading of the Warrior-Tombigbee Waterway channels and locks. We support the proposed budget request for $16.3 million in Operations and Maintenance funds for the Black Warrior-Tombigbee River for the fiscal year 1997. Additionally, we support the earliest completion of the capital proejcts that have been deferred over the past two years as well as the request for O&M amounts for Mobile Harbor.

Adequate funding of programs required to maintain the efficiency and reliability of our nation's waterways is critical to its superior economic health and welfare. I strongly urge and solicit your support.

LETTER FROM ALVIN P. DU PONT, MAYOR, CITY OF TUSCALOOSA, AL

January 29, 1996

Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate
Washington, D.C. 20510

Dear Senator Domenici:

I am asking that you support the appropriation of $16.3 million for the U.S. Army Corps of Engineer's FY '97 operation and maintenance of the Warrior-Tombigbee Waterway and Mobile Harbor. I understand that this is the amount in the present budget, which was reduced by 3% from last year; and therefore is at minimum level. Please do not reduce this amount.

I also understand that the Corps has the additional capability to get underway on projects totalling $4,650,000 which have been deferred over the past years. These projects are vital to continuing the improvements year to year which ultimately will bring the waterway efficiency to an expected level. I appeal to you to support these projects as well.

I am certain that the availability of water transportation is critical to our area's manufacturing development. It is therefore important that the river system remain navigable and that projects to upgrade the system be funded and completed.

LETTER FROM E.R. CAINE, GENERAL MANAGER, U.S. STEEL, FAIRFIELD, AL

February 14, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington, DC 20510

Dear Senator Domenici:

U.S.X. Corporation operations (both steel and mining) rely heavily upon the availability of Alabama's river systems to transport iron ore, coke and finished steel products. The availability of a commercially viable river transport system permits U.S.X. to be competitive both domestically and internationally.

Our plans call for moving up to 5.5 million tons per year of material over the Warrior-Tombigbee Waterway System during the coming years.

It is for this reason that we offer our support for the Corp of Engineers in their request for operation and maintenance funds for fiscal year 1997. We feel the Warrior-Tombigbee Waterway System is vital to the continued growth of Alabama.

We support the action of the Warrior-Tombigbee Development Association in their efforts to assist the Corp of Engineers.

LETTER FROM T. KEITH KING, P.E., DAVID VOLKERT AND ASSOCIATES, INC., MOBILE, AL

February 20, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
U.S. Senate
Washington, D.C. 20510

Dear Senator Domenici:

David Volkert & Associates, Inc. (Volkert) is an engineering/architectural/planning firm which employs 375 people and maintains Alabama offices in Mobile, Birmingham, and Gulf Shores. Volkert strongly supports funding for the Corps of Engineers for the Warrior-Tombigbee Waterway and the Port of Mobile for FY97.

We believe the proposed $16.3 million for Operations and Maintenance funds for the Black Warrior-Tombigbee is justified since this amount is necessary to cover the known and reasonably expected needs for FY97, support the day-to-day O&M program, and continue on-going channel improvement projects. We also support an additional $4,650,000 needed by the Corps to continue the improvements year to year which ultimately will bring the waterway efficiency to an expected level.

Since the City of Mobile's largest industry is her Port and the City's economy depends upon her Port, Volkert also supports funding for O&M for Mobile Harbor.

Confidence in the Waterway and its efficiency and modernization are important in bringing much needed new industry to Mobile and to the State of Alabama. Lower operating costs to users of the Waterway and Port of Mobile are essential in obtaining a reasonable balance of the international export market allowing the U.S. to reduce our trade deficit. Increases in shipping and commerce result in opportunities for many companies, similar to Volkert, to obtain business and offer meaningful employment to citizens of the State of Alabama and other parts of the U.S.

Volkert appreciates this opportunity to express our support of Chairman Charles A. Haun and President Sheldon L. Morgan, of the Black Warrior-Tombigbee Development Association, and the testimony to be given by them before the Appropriations Committee of the Senate and House. We are proud to join in the collective effort to improve the efficiency and reliability of the Black Warrior-Tombigbee Waterway and the Port of Mobile.

LETTER FROM ADOLPH N. OJARD, PRESIDENT, WARRIOR & GULF NAVIGATION CO., CHICKASAW, AL

February 23, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water Development
United States Senate
Washington DC 20515

Dear Mr. Chairman:

I am Adolph N. Ojard, President of Warrior & Gulf Navigation Company. Our company is an active member of the Warrior-Tombigbee Development Association and wholly supports the testimony to be presented by Mr. Sheldon Morgan as President of the Association. I wish to take this opportunity to highlight the impact that the Black Warrior-Tombigbee Waterway and the Port of Mobile has to the success and development of our Company.

Warrior & Gulf is a barge line and terminal operator headquartered in Chickasaw, Alabama, and owns 22 towboats and 240 barges, moving approximately 9 million tons of bulk materials on the Black Warrior-Tombigbee River System, making WGN the dominant water carrier operating in the region. Additionally, we own and operate two (2) bulk and general cargo terminals at Port Birmingham and Mobile, Alabama, providing storage, transloading and intermodal services for truck, rail and water transportation. Our total employment is 235 people.

Warrior & Gulf has provided barge transportation on the Black Warrior-Tombigbee River Systems since 1940 for export and domestic coal, iron ore, coke, import and export steel products, export and domestic wood chips, and several other types of bulk commodities. An efficient and properly maintained waterway system integrated with the Port of Mobile is vital to Warrior & Gulf and its customers. This waterway system has made the entire region world competitors through the reliable, efficient movement of raw materials and finished products both for domestic and overseas consumption. In order to encourage continued economic development along this great waterway we must continue in our efforts to ensure this viable low cost transportation alternative remains in place. The continued efficiency of this waterway is extremely critical to the viability of the industries it services and develops. This waterway system and harbor hold great opportunity for developing trade initiatives with Mexico and South America.

Historically, our shoaling problems vary greatly from year to year dependent upon the length of our high water season (December - April) and the amount of flooding that occurs. The Operations & Maintenance budget has been typically $18 - 20 million including monies to maintain ongoing channel improvements which are important to the continued safety and efficiency of the waterway system.

We have worked closely with the Corps of Engineers and wholeheartedly endorse their budget request of $16.3 million in O & M funds for the Black Warrior-Tombigbee system for FY '97. However, we understand the Corps has the additional capability to get underway on those projects which have been deferred over the past two years and hope the Corps will proceed accordingly. Additionally, our company supports the appropriation of adequate O & M funds for Mobile Harbor

We respectfully request your continued support and assistance as your subcommittee considers appropriation of funds for these very important issues concerning the Black Warrior-Tombigbee System, the Port of Mobile and those they serve

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PREPARED STATEMENT OF RALPH O. CLEMENS, JR., PRESIDENT, COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION, INC., MONTGOMERY, AL

MR. CHAIRMAN & DISTINGUISHED COMMITTEE MEMBERS:

THIS STATEMENT INCLUDES THE FOLLOWING:

A) A PLEA TO EXERCISE CAUTION AND DUE DELIBERATION BEFORE MAKING CUTS IN OUR NATION'S TRANSPORTATION SYSTEM.

B) A REQUEST FOR SUPPORT IN THE FOLLOWING AREAS:

1) O&M FUNDING FOR THE COOSA-ALABAMA BASINS AS WELL AS MOBILE HARBOR;

2) FUNDING FOR THE STUDY OF A FOURTH LOCK AND DAM ON THE ALABAMA RIVER;

3) REOPENING THE COOSA NAVIGATION PROJECT;

4) RESISTING ANY ATTEMPT TO RAISE USER FUEL TAXES ON THE INLAND RIVER NAVIGATION INDUSTRY;

5) CONTINUED SUPPORT FOR THE COMPREHENSIVE BASIN MANAGEMENT STUDY;

6) AMENDING THE ENDANGERED SPECIES ACT OF 1973 WITH REASONABLE AND EFFECTIVE MEASURES TO PROTECT OUR CITIZENS AS WELL AS THE ENVIRONMENT.

EXPANDED STATEMENT

THANK YOU, MR. CHAIRMAN, FOR THE OPPORTUNITY TO PRESENT TO THIS SUBCOMMITTEE MY PERSPECTIVE ON SEVERAL TOPICS OF INTEREST TO THE MEMBERS OF THE COOSA-ALABAMA RIVER IMPROVEMENT ASSOCIATION, A 105-YEAR OLD ORGANIZATION THAT PROMOTES THE ECONOMIC AND ENVIRONMENTAL DEVELOPMENT OF THE ALABAMA-COOSA-TALLAPOOSA RIVER BASIN FOR THE GENERAL WELFARE OF THE PEOPLE WHO RESIDE IN THAT BASIN. I SPEAK FOR A LARGE AND DIVERSE GROUP OF PRIVATE CITIZENS AND POLITICAL AND INDUSTRIAL ORGANIZATIONS WHO SEE THE CONTINUED DEVELOPMENT OF THE COOSA-ALABAMA WATERWAY AS AN OPPORTUNITY FOR ECONOMIC GROWTH, AND WHO REGARD THE EFFECTIVE MANAGEMENT OF WATER RESOURCES WITHIN THE RIVER BASINS AS A VITAL INTEREST OF THE CITIZENS WHO LIVE THERE.

OUR MEMBERSHIP REFLECTS A BROAD RANGE OF CALLINGS AND PROFESSIONS, FROM SHIPPERS AND TOW OPERATORS TO BUSINESSMEN, BANKERS, AND A VARIETY OF OTHER PRIVATE INDIVIDUALS WHO HAVE A STAKE IN FUTURE ECONOMIC DEVELOPMENT FOR THEIR FIRMS OR SUCCESSORS TO ENJOY. THEN THERE IS A LARGE GROUP OF ELECTED OFFICIALS AND THEIR CONSTITUENTS TYPICAL OF THE TWENTY-THREE MUNICIPALITIES AND NINETEEN COUNTIES ALONG THE WATERWAY WHO ARE MEMBERS OF THIS ASSOCIATION. THESE MEMBERS ARE WORKING DILIGENTLY TO DEVELOP OUR

WATERWAY INTO A PRODUCTIVE PART OF THE RIVER INFRASTRUCTURE OF THE STATE AND NATION. THEIR EFFORTS SPRING FROM A DESIRE NOT ONLY TO IMPROVE THE ECONOMIC CONTRIBUTION OF ENHANCED TRANSPORTATION AVAILABLE TO USERS, BUT TO PROVIDE A MEANS OF GROWTH.

I WOULD LIKE TO PREFACE OUR REQUESTS FOR SPECIFIC FUNDING LINES WITH A FEW REMARKS REGARDING THE MOOD AND TONE OF CURRENT BUDGET CUTTING EXERCISES WITHIN THE FEDERAL GOVERNMENT, AS THEY APPLY TO OUR NATION'S WATERWAYS.

THE CURRENT BUDGET DELIBERATIONS ARE DIFFICULT, BUT IN THE COURSE OF RESOLVING THE DIFFERENCES THAT NOW EXIST, CONGRESS MUST PROTECT THE NATION'S TRANSPORTATION INFRASTRUCTURE. WE URGE CAUTION AND DUE DELIBERATION BEFORE MAKING EXPEDIENT CUTS IN THAT INFRASTRUCTURE. NOTABLE AMONG THE IDEAS SURFACING THIS PAST YEAR WAS THE PROPOSED SALE OF THE SOUTHEASTERN POWER ADMINISTRATION (SEPA), INCLUDING LOCKS, DAMS, AND RESERVOIRS, TO PRIVATE INTERESTS. EMPHASIS IN THIS PROPOSAL WAS ON SEPA'S POWER GENERATION CAPABILITY, ALMOST TO THE EXCLUSION OF THOSE FACILITIES THAT SUPPORT THE NAVIGATION INDUSTRY: LOCKS, DAMS, AND RESERVOIRS. MANAGEMENT OF THOSE LOCKS, DAMS, AND RESERVOIRS IS A COMPLEX, CLOSELY COORDINATED OPERATION, ABSOLUTELY VITAL TO PROPER NAVIGATION CONDITIONS. ON THE COOSA-ALABAMA SYSTEM, THAT MANAGEMENT IS PROVIDED BY THE CORPS OF ENGINEERS AND ALABAMA POWER COMPANY. WE ARE CONCERNED THAT SELLING THE LOCKS, DAMS, AND RESERVOIRS TO OTHER, PERHAPS MULTIPLE, OWNERS CAN ONLY MAKE A COMPLICATED MANAGEMENT ACTION EVEN MORE SO TO THE DETRIMENT OF THE NAVIGATION INDUSTRY. WE HAVE NO OBJECTIONS TO SELLING THE POWER GENERATION CAPABILITY OF THE SEPA FACILITIES, BUT URGE THAT MANAGEMENT OF LOCKS AND RESERVOIRS REMAIN IN THE HANDS OF THE CORPS OF ENGINEERS. THERE IS PRECEDENT FOR THIS ARRANGEMENT: ALABAMA POWER COMPANY OPERATES THE POWER GENERATION FACILITIES ON BOTH BANKHEAD DAM AND HOLT DAM ON THE BLACK WARRIOR RIVER WHILE THE CORPS OF ENGINEERS MANAGES THE RESERVOIRS AND LOCKS.

WITH THAT BEING SAID, MR. CHAIRMAN, SINCE THE CORPS OF ENGINEERS BUDGET HAS NOT YET BEEN RELEASED, WE URGE THAT PRIORITIES WITHIN YOUR APPROPRIATION BE ON MAINTAINING THE OPERATIONS AND MAINTENANCE FOR PROJECTS IN THE COOSA-ALABAMA RIVER SYSTEM AND IN MOBILE HARBOR AT LEVELS EQUAL TO THAT OF FY 96. WE ARE CONCERNED THAT ANY BUDGET STRATEGY THAT REDUCES FUNDING FOR THE OPERATION AND MAINTENANCE OF INLAND AND INTRACOASTAL WATERWAYS WILL HAVE A DETRIMENTAL EFFECT ON ECONOMIC GROWTH AND DEVELOPMENT. WE CANNOT ALLOW THAT TO HAPPEN. IN THE ALABAMA-COOSA RIVER BASIN, EXISTING RIVER PROJECTS AND FACILITIES SUPPORT THE COMMERCIAL NAVIGATION, HYDROPOWER, AND RECREATIONAL ACTIVITIES SO CRITICAL TO OUR REGION'S ECONOMY. SO THE FIRST PRIORITY MUST BE THE O&M FUNDING THAT PERPETUATES THOSE PROJECTS, INCLUDING CONTINUED REHABILITATION OF EXISTING FACILITIES, MAINTENANCE DREDGING, AND MODIFICATION OF TRAINING DIKES. WE RECOMMEND THE FOLLOWING FUNDING LINES:

PROJECT	ASSOCIATION'S BUDGET REQUEST
ALABAMA-COOSA RIVER, AL* (AL RIVER INCL CLAIBORNE L&D)	$ 5,668,000
MILLER'S FERRY L&D	$ 5,156,000
ROBERT F. HENRY L&D	$ 3,688,000
MOBILE HARBOR	$ 17,780,000
LAKE ALLATOONA, GA	$ 5,894,000
CARTERS LAKE, GA	$ 5,218,000

LOWER ALABAMA NAVIGATION STUDY (AL RIVER SOUTH OF CLAIBORNE) - FEASIBILITY PHASE	$	300,000
TOTALS	$	43,704,000

*INCLUDES 72 MILES FROM THE MOUTH OF THE ALABAMA RIVER THROUGH CLAIBORNE L&D TO MILLER'S FERRY. COOSA RIVER NOT INCLUDED. ALSO INCLUDES MONIES FOR LAND ACQUISITION AND MONITORING PROGRAMS.

ONCE THE CORPS OF ENGINEERS' BUDGET IS RELEASED, WE WOULD LIKE THE OPPORTUNITY TO REVISE OUR REQUESTED FUNDING LINES AS NECESSARY.

TO ATTRACT NEW BUSINESS AND INDUSTRIAL TRAFFIC, AND EVEN TO MAINTAIN THAT WHICH CURRENTLY PLIES THE WATERS, WE MUST IMPROVE THE INFRASTRUCTURE OF THE RIVER SYSTEM. OVER THIS PAST YEAR, SEVERAL BUSINESSES HAVE INQUIRED ABOUT THE MONTGOMERY AREA AS A POTENTIAL LOCATION FOR THEIR OPERATION, BUT WHERE ALL OTHER CONDITIONS FOR THEIR RELOCATION WERE FAVORABLE, THE UNFAVORABLE RELIABILITY OF THE ALABAMA RIVER AS A TRANSPORTATION NODE DETERRED THEM. WHO KNOWS HOW MANY OTHERS ELIMINATED THE AREA BEFORE EVEN INQUIRING BECAUSE OF THE RIVER RELIABILITY? WE HAVE RECEIVED INQUIRIES IN OUR OFFICE FROM FORMER USERS OF THE RIVER WHO, HAVING CEASED OPERATIONS DUE TO THE UNFAVORABLE RELIABILITY, WANTED TO KNOW IF THE CONDITIONS HAD BEEN IMPROVED BECAUSE THEY WERE STILL INTERESTED IN DOING BUSINESS NEAR MONTGOMERY. WHILE THE ENTIRE ALABAMA RIVER PRESENTS NAVIGATION CHALLENGES, THE MAJOR PROBLEMS ARE BELOW CLAIBORNE DAM WHERE PREVIOUS INVESTMENTS IN TRAINING DIKES AND DEVICES HAVE ONLY SLIGHTLY IMPROVED THE NAVIGATION CONDITIONS IN THAT AREA. THE MOST EFFECTIVE SOLUTION TO THAT PROBLEM IS A FOURTH LOCK AND DAM TO BE CONSTRUCTED AT THE APPROPRIATE SITE. CORPS OF ENGINEERS-MOBILE IS CURRENTLY CONDUCTING A RECONNAISSANCE STUDY OF THAT OPTION. WE STRONGLY SUPPORT THAT STUDY AND URGE THAT FUNDING OF AT LEAST $300,000 BE AVAILABLE FOR A FOLLOW-ON FEASIBILITY STUDY. WE MUST IMPROVE THE NAVIGATION CONDITIONS IN THAT PART OF THE RIVER TO HAVE ANY HOPE OF ENTICING RIVER-DEPENDENT INDUSTRY TO CHOOSE THE ALABAMA RIVER BASIN AS ITS HOME.

AS YOU ARE AWARE, MR. CHAIRMAN, ONE OF OUR ASSOCIATION'S MAJOR GOALS IS THE COMPLETION OF A NAVIGABLE WATERWAY FROM MOBILE TO ROME, GEORGIA. THE HISTORY OF THE COOSA RIVER PROJECT IS WELL KNOWN BY THIS COMMITTEE, BUT THE PROPOSAL IS IN LINE WITH OUR EMPHASIS ON BOTH INFRASTRUCTURE INVESTMENT AND THE CREATION OF JOBS AND ECONOMIC OPPORTUNITY THROUGHOUT OUR REGION. PLEASE REMEMBER THAT THE PRE-DESIGN ENGINEERING SURVEYS ARE COMPLETE, SO THAT ONE OF THE MOST TIME-CONSUMING REQUIREMENTS OF THE PROJECT IS ALREADY ON THE SHELF. WE ARE WELL AWARE OF THE RESTRICTIVE FUNDING FOR SUCH UNDERTAKINGS IN THE CURRENT ENVIRONMENT, BUT ASK THE COMMITTEE TO RECOGNIZE THAT THE COMPLETION OF SUCH A PROJECT IS ONE OF LARGEST AND MOST RAPID GENERATORS OF JOBS CURRENTLY AVAILABLE. WE OWE IT TO THE PEOPLE OF THE COOSA-ALABAMA RIVER BASIN, THE STATES OF ALABAMA AND GEORGIA, AND THE ENTIRE REGION TO MAINTAIN THE VISION OF COMPLETING THIS WATERWAY.

ANOTHER MECHANISM TO MAKE THE RIVER SYSTEM ATTRACTIVE TO POTENTIAL USERS IS TO KEEP THE COST OF SHIPPING VIA WATERWAYS AS LOW AS POSSIBLE. A POPULAR SUGGESTION TO DEFRAY SOME OF THE COSTS OF MAINTAINING AND UPGRADING OUR NATION'S WATERWAYS IS TO INCREASE A USER'S FUEL TAX. ANALYSES OF PREVIOUS PROPOSALS INDICATE THAT SUCH AN INCREASE WOULD HAVE A DETRIMENTAL EFFECT ON CONSUMER PRICES AND TRADE BALANCE IN THE SHORT RUN, AND IN THE LONG RUN ON THE ABILITY OF THE FEDERAL-PRIVATE PARTNERSHIP TO MAINTAIN THE SYSTEM. THE NATION'S WATERWAY SYSTEM IS A NATIONAL ASSET. THE ENTIRE NATION BENEFITS FROM IT, AND IT SHOULD BE FUNDED AS SUCH, NOT ON THE BACKS OF THOSE WHO HAPPEN TO OPERATE VESSELS OR SHIP COMMODITIES ON ITS WATERS.

ANOTHER ISSUE THAT COULD RAISE THE SPECTER OF INCREASING USER TAXES IS THE DECISION OF THE U.S. COURT OF INTERNATIONAL TRADE TO DECLARE UNCONSTITUTIONAL THE EXPORT FEES CURRENTLY COLLECTED IN THE HARBOR MAINTENANCE TRUST FUND. THERE IS THE PROSPECT ALSO THAT IMPORT FEES MAY BE CHALLENGED AS WELL. THE COURT'S DECISION IS ON APPEAL BY THE ADMINISTRATION, BUT SHOULD THE DECISION BE UPHELD AND EXPORT FEES ARE ELIMINATED, AND SHOULD IMPORT FEES BE SUCCESSFULLY CHALLENGED, IT WILL BE A SEVERE BLOW TO THE CORPS OF ENGINEERS BUDGET. THIS FUND PROVIDES APPROXIMATELY $500 MILLION A YEAR TO THE CORPS TO MAINTAIN THE NATION'S DEEP WATER PORTS. IF THAT $500 MILLION IS LOST, WE FEAR THAT PRIORITIES FOR CORPS FUNDING WILL GO TO DEEP WATER PORTS AT THE EXPENSE OF MAINTENANCE ON OUR INLAND WATERWAYS, AND THAT PROPONENTS OF INCREASING USER TAXES WILL SEEK TO RECOVER SOME OF THE LOST FUNDING ON THE BACKS OF INLAND WATERWAY SHIPPERS AND CARRIERS.

MR. CHAIRMAN, SINCE 1992 THE FEDERAL GOVERNMENT HAS SPONSORED A STUDY TO DETERMINE THE WATER RESOURCES AVAILABLE IN THE ALABAMA-COOSA-TALLAPOOSA AND THE APALACHICOLA-CHATTAHOOCHEE-FLINT RIVER BASINS, THE NEED FOR THAT WATER, AND SOME MECHANISM TO MANAGE THOSE RESOURCES THROUGH THE YEAR 2050. WHILE FUNDING FOR THAT STUDY ENDS WITH THIS FISCAL YEAR, WE URGE CONGRESS TO ENCOURAGE THE STATES OF ALABAMA, GEORGIA, AND FLORIDA TO PERSEVERE IN THEIR EFFORTS TO DEVELOP A LASTING AGREEMENT ON THE DISPOSITION OF ALL THE VITAL WATER RESOURCES IN THE REGION.

LASTLY, WE ASK CONGRESS TO MODIFY THE ENDANGERED SPECIES ACT TO REQUIRE AN ANALYSIS OF THE ECONOMIC AND SOCIAL FACTORS AND IMPACTS ON ALL CONCERNED BEFORE APPROVAL FOR AN OFFICIAL LISTING CAN BE MADE. OUR ASSOCIATION SUPPORTS REASONABLE AND EFFECTIVE MEASURES TO PROTECT OUR ENVIRONMENT, BUT THOSE MEASURES MUST BALANCE THE ROLE OF A PARTICULAR SPECIES IN THE NATURE OF THINGS AGAINST THE NEEDS OF PEOPLE. WE CAN ONLY POINT TO PREVIOUS EXAMPLES, OF WHICH THE COMMITTEE IS WELL AWARE, OF HOW FAILURE TO ADDRESS THE ECONOMIC AND SOCIAL IMPACTS OF A LISTING BEFOREHAND HAS CAUSED FAR MORE HARM TO THE HUMAN POPULATION THAN WAS WARRANTED. WE DON'T ASK TO DO AWAY WITH THE NEED TO PROTECT OUR ENVIRONMENT, BUT SIMPLY TO MAKE THE ENDANGERED SPECIES ACT AN EFFECTIVE TOOL WITH WHICH THIS NATION CAN PROGRESS.

IN CLOSING, MR. CHAIRMAN, WE REQUEST YOUR SUPPORT IN THE FOLLOWING AREAS:

1) O&M FUNDING FOR THE COOSA-ALABAMA BASINS AS WELL AS MOBILE HARBOR;

2) CONTINUED FUNDING FOR A FOURTH LOCK AND DAM STUDY ON THE ALABAMA RIVER;

3) REOPENING THE COOSA NAVIGATION PROJECT;

4) RESISTING ANY ATTEMPT TO RAISE USER FUEL TAXES ON THE INLAND RIVER NAVIGATION INDUSTRY;

5) CONTINUING SUPPORT FOR THE COMPREHENSIVE BASIN WATER MANAGEMENT STUDY; AND

6) AMENDING THE ENDANGERED SPECIES ACT OF 1973 TO REQUIRE AN ECONOMIC AND SOCIAL IMPACT ANALYSIS PRIOR TO LISTING AND TO ESTABLISH A BALANCE IN THE PROSECTION OF SUCH A LISTING.

MR. CHAIRMAN, WE WISH TO TAKE THIS OPPORTUNITY TO EXPRESS OUR GRATITUDE TO YOU, MR. BEVILL, AND TO YOU, MR. MYERS, AND ALL MEMBERS OF YOUR COMMITTEE, FOR YOUR SUPPORT WHILE YOU HAVE BEEN IN CONGRESS. WE CONGRATULATE YOU FOR A JOB WELL DONE AND WISH YOU GODSPEED AND FAIR WEATHER UPON YOUR RETIREMENT. THANK YOU FOR YOUR SERVICE.

LETTER FROM JUDGE OTHA LEE BIGGS, MONROE COUNTY COMMISSION, MONROEVILLE, AL

February 19, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici,

The Monroe County Commission, Monroe County, Alabama, respectfully requests the approval for the FY 97 Appropriations for the maintenance and extension of the Coosa-Alabama Rivers Waterways. We are a part of a collective effort to maintain and extend this most important Rivers System that extends from Northwest Georgia through Alabama to the Port of Mobile.

The full economic benefits to the Southeastern part of the United States will not be realized until this Waterway System is fully navigable from Rome, Georgia to the Port of Mobile.

It is therefore requested that any increased user fees and taxes be discarded or substantially reduced as revenue generators, as increased user fees and taxes tend to stifle all businesses associated with Waterway activities. For this Waterway System to reach its full potential, design and engineering work on the Coosa Project which was suspended in 1983 should be resumed. Complete dredging and appropriate maintenance of the Alabama River Channel from Mobile Harbor is essential. Although we support the protection of our environment but particular emphasis should be put on consideration of economic impact of a proposed listing of endangered species at the time of listing. We further respectfully request that Federal Funding be provided to study how to make the lower Alabama River usable year round; that is, From Claiborne to Mobile.

Thank you for your favorable consideration for the FY97 appropriation request for the Coosa- Alabama Rivers System.

LETTER FROM ROY BANKS, ST. CLAIR COUNTY COMMISSION, ASHVILLE, AL

February 15, 1996

Coosa-Alabama River Improvement Assn., Inc
60 Commerce Street, Suite 1201
Montgomery, Alabama 36104-3563

Gentlemen:

Re: Congressional Hearings
February 27, 1996

Enclosed is resolution adopted by the Commission during a regular meeting held February 13, 1996, which is to be directed to:

The Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
427 Dirkson Senate Building
Washington, D. C. 20510

None of our Commission members will be able to attend the Hearings, but want to offer support for your efforts.

RESOLUTION

WHEREAS, the Coosa-Alabama River Improvement Association Congressional Hearings are scheduled to be held February 27, 1996, in Washington, D. C.; and

WHEREAS, pressure is great to reduce funding for waterway development and maintenance; and will, no doubt, affect waterways in Alabama; and

WHEREAS, extensive commitments to private investment on navigable waterways have been made on the assumption that Federal maintenance and operations of the waterways would be continued;

NOW THEREFORE BE IT RESOLVED, That the St. Clair County Commission go on record in support of the Coosa-Alabama River Improvement Association's requests for FY96;

FURTHER, That the Honorable John T. Myers, Chairman, House Subcommittee on Appropriations for Energy and Water Development; and the Honorable Pete V. Domenici, Chairman, Senate Subcommittee on Appropriations for Energy and Water Development; be forwarded a copy of said resolution adopted this date.

ADOPTED this 13 day of February, 1996.

ST. CLAIR COUNTY COMMISSION

Chairman

Member

Member

Charles R. Ford
Member

Member

Attest:

Sue C. Wilson
Clerk, St. Clair County
Commission

PREPARED STATEMENT OF SUSAN N. STORY, VICE PRESIDENT-CORPORATE REAL ESTATE, ALABAMA POWER CO.

Alabama Power Company appreciates the opportunity to express its support for the request of the Coosa-Alabama River Improvement Association, Inc., before the Congressional Appropriations Subcommittees that adequate funding be appropriated in FY1997 to fund this Association and to satisfactorily provide essential O&M and capital improvements to navigable waterways in the state of Alabama maintained by the U.S. Army Corps of Engineers. Proper maintenance and improvement to inland waterways is essential to the economic well-being of the state, as well as supporting international commerce so vital to the region and the Nation. Navigable inland waterways that provide access to international ports provide an alternative transportation route for bulk and high volume cargo that is essential for economic competition in the international market place.

Alabama Power Company utilizes inland waterways to barge coal, petroleum, and other essential commodities to its fossil power plants. This transportation source not only lowers freight costs, but insures supplies by providing sources from alternative suppliers throughout the country. It is important that timely and appropriate channel maintenance and dredging be performed.

Of special interest to Alabama Power Company is the continued operation and maintenance of the reservoirs and hydroelectric plants at the Allatoona and Carters projects. These reservoirs, in conjunction with other storage reservoirs within the Coosa-Alabama Basin, provide flow essential to ensuring a dependable and adequate supply of electricity for the Southeast, at a reasonable cost, and to supporting navigation flows critical to the operation of the Alabama River navigation channel.

Congress is to be commended for its decision to authorize the Army Corps of Engineers - working in partnership with Alabama, Georgia, and Florida - to conduct a Comprehensive Study of the Alabama, Coosa, and Tallapoosa (ACT) and the Appalachicola, Chattahoochee, and Flint (ACF) river basins. Important results from this study will be forthcoming in FY1997.

Congress is to be commended for its direct interest and involvement in the issue of the proposal to list the Alabama River Sturgeon as Rare and Endangered, and the companion legislation to declare its critical habitat. Objections raised by the public and by several Congressmen, ultimately resulted in the withdrawal of this listing proposal. Had this listing succeeded, tremendous impact to navigation on the Alabama, Warrior, and Tombigbee waterways would have occurred, with billions of dollars in associated economic losses.

LETTER FROM ANNE H. FARISH, MAYOR, CITY OF MONROEVILLE, AL

February 20, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, D. C. 20510

Honorable Domenici,

I am writing on behalf of the City Council of the City of Monroeville, Alabama, to express our support of the Coosa-Alabama River Improvements Association, Inc. requests for FY97 in the following matters.

It is imperative to the citizens of Monroeville that timely and complete dredging and appropriate maintenance of the Alabama River is continued. It is our concern that listing the Alabama Sturgeon as an endangered species will prohibit some or all of the dredging necessary for commercial transportation on the Alabama River. Enough evidence has not been presented to establish that the Sturgeon still exists. As long as there is a threat of this species being labeled endangered, industrial expansion is hindered in our community.

Congress should amend the Endangered Species Act to include reasonable, balanced measures to protect our environment, including valid scientific processes, extensive and definitive efforts to analyze the need to list endangered species, and logical provisions for maintaining the habitat of those species that actually need protection. Particular emphasis should be put on consideration of economic impacts of a proposed listing at the time of listing.

During the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened as well as mandatory designation of critical habitats at the time the species is listed. In addition, the Congress should direct the Fish & Wildlife Service to develop procedures to objectively share information and specimens with parties closely related to the listing process.

I trust you will be sympathetic to Monroeville's concerns in this matter.

LETTER FROM JAMIE D. WALLACE, PRESIDENT, SELMA AND DALLAS COUNTY CHAMBER OF COMMERCE, SELMA, AL

February 16, 1996

Honorable Pete V. Domenici, Chairman
House Subcommittee on Appropriations
for Energy and Water Development
U.S. Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

As one of the longtime proponents of the Coosa-Alabama River Waterway, the Selma-Dallas County Chamber of Commerce continues to solidly support development of this river system.

It is essential that studies continue for the entire system, but even more important that significant funding be allocated for keeping the present Alabama River channel open to shipping. Due to the nature of the architectural sands and gravels in the channel without such maintenance the channel becomes unusable for barge traffic and it becomes only a recreational waterway. Of course, we are pleased to have it for that use as well, but we need the best of both worlds.

We have also been involved in the opposition to having certain species added to the endangered list which we feel would effectively shut the waterway down and endanger our economic development efforts that are showing great success. At the same time, these additions would cost cities and towns along the waters millions of dollars in upgrading sewage treatment facilities, not to meet EPA standards, but to keep from disturbing the natural habitat of the endangered species. In determining additions to the endangered species list laws should be enacted to require that economic impact be considered.

During this time of budgeting tightening we understand that funds will be scarce but we also understand that there are certain areas where we can be foolish in not investing for the best return on the dollars spent.

Thank you for your consideration and support.

With Best Regards,

LETTER FROM CARL C. MORGAN, JR., PRESIDENT OF CITY COUNCIL, SALMA, AL

February 15, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washingtonm, D.C. 20510

Dear Honorable Domenici,

The Mayor and the City Council of Selma, Alabama at the last council meeting, went on record as strongly supporting the Coosa-Alabama Association's requests for FY96. The city has recently completed a successful campaign to support our Economic Development Authority in their effort to expand our existing industries and to actively recruit new and relocating companies to our area. The location of a deep water port at Mobile and the operation of the Alabama Docks at that location are factors that greatly enhance the opportunities we can present to industrial prospects.

River traffic depends on timely and complete dredging of the waterway and the necessary maintenance for the Alabama River Channel cannot be over emphasized. In addition this maintenance and operation of the Alabama River waterway from Montgomery to Mobile by the Federal Government are essential to those industries in our area that are presently using river traffic.

Of great concern to all of us is the over emphasis that has been placed by provisions of the Endangered Species Act with regard to the Sturgeon, supposed to have been found in the river. We strongly support reasonable and balanced measures to protect our environment, but we feel Congress should take into consideration the economic impact to list a species as endangered as well as the mandatory designation of the habitat at the time the species is listed. Direction should be provided to the Fish and Wildlife Service to work objectively and share information with those charged with the listing process.

Thank you for your careful consideration of our thoughts and requests.

LETTER FROM JAMES T. JORDAN, J.T. JORDAN COTTON, INC., CENTRE, AL

February 27, 1996

Honorable Pete V. Domenici
Chairman
Senate Subcommittee on Appropriations for
Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, D. C. 20510

Dear Senator Domenici:

At the momemnt, I do not plan to be with the delegation of the Alabama River Improvement Association, Inc. when you are in Washington.

I strongly support the Association requests for FY96. I am also a part of a collective effort to maintain and extend the waterway.

Work was suspended on the design and engineering on the Coosa Project in 1983, and I would like to see this resumed so it can be completed.

Since I am a farmer, I want to see lowered freight rates as manufacturers and farmers compete to improve our balance of payments. This is also of national interest, not only to farmers and manufacturers.

Waterways are so important as they provide efficient transportation productivity which lowers inflation and reduces national deficits which we desperately need to focus our attention on.

In my opinion, Congress should continue to support the study by the Corps of Engineers and Alabama/Georgia/Florida to resolve the two-basin water dispute in the region.

Your attention to the above matters would be greatly appreciated to all of us.

LETTER FROM ROBERT M. CRESWELL, CONSULTANT, CAMDEN, AL

February 27, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, DC 20510

Dear Senator Domenici:

As a former Resource Manager for 15 years with the Corps of Engineers, I have an abiding interest in the Coosa-Alabama River Project and supportthe Coosa-Alabama River Improvement Assn., Inc. in its request for FY96 in its effort to maintain and extend the navigable project.

I feel that a reumption of the design and engineering work suspended in 1983 is in order and the present waterway on the Alabama River from Mobile to Montgomery should be maintained, including dredging, and the channel, locks, dams, powerhouses and recreational facilities operated efficiently. Funding of a study to make the lower Alabama River usable year-round and construction of a fourth lock and dam below Claiborne Dam is urged.

When the project was placed in operation, investors in industrial plants along the channel and the general public were assured that a 9-foot channel would be maintain and that the public would have access to the river for recreation at numerous landi and ramps.

In addition, the Congress should continue to support the study of the Corps of Engi eers and Alabama/Georgia/Florida to resolve the two-basin water dispute now pending I also urge you to support the amending of the Endangered Species Act to require th consideration of economic impacts in a decision to list a species as endangered or threatened as well as mandatory designation of critical habitat at the time the species is listed. Likewise, the Fish & Wildlife Service should be directed to develop procedures to share information and specimens with parties closely related to the listing process.

Your committee's consideration of these factors in funding the Coosa-Alabama River project will be appreciated.

LETTER FROM SANDY SMITH, EXECUTIVE DIRECTOR, MONROEVILLE AREA CHAMBER OF COMMERCE, AL

February 19, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

The Monroeville Area Chamber of Commerce is in support of the Coosa-Alabama River Improvement Association's funding requests for fiscal year 1997. Our board is part of a collective group with the common goal of maintaining and extending the waterway. As such, we represent our local employers whose interests in maintaining, improving and extending the waterway are vital to their economic survival and profitability. As a group whose chief focus is to recruit new industry to our region, the navigability of the Alabama River is critical to our success. We specifically request that Federal maintenance and operation of the Alabama River waterway from Mobile to Montgomery as well as Mobile Harbor be continued. In addition, the investment in a fourth dam in the area south of Claiborne would make the Alabama River useable year-round and would be a point of enhancement for our economic development efforts in this region. Waterways provide efficient transportion and productivity that lowers inflation and reduces national deficits. Enhancement of our local waterways will make our region more attractive to new and expanding industry.

In addition, during the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened, as well as mandatory designation of critical habitat at the time the species is listed. The threat to list the Alabama sturgeon as an endangered species threatens the economic livelihood of several of our area industries. Therefore we should like this law closely reviewed.

Thank you in advance for your consideration.

LETTER FROM HARVEL DEAS, MONROE COUNTY INDUSTRIAL DEVELOPMENT BOARD, MONROEVILLE, AL

February 19, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
Energy and Water Development
U. S. Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

The Monroe County Industrial Development Board is in support of the Coosa-Alabama River Improvement Association's funding requests for fiscal year 1997. Our board is part of a collective group with the common goal of maintaining and extending the waterway. As such, we represent our local employers whose interests in maintaining, improving and extending the waterway are vital to their economic survival and profitability. As a group whose chief focus is to recruit new industry to our region, the navigability of the Alabama River is critical to our success.

We specifically request that Federal maintenance and operation of the Alabama River waterway from Mobile to Montgomery as well as Mobile Harbor be continued. In addition, the investment in a fourth dam in the area south of Claiborne would make the Alabama River useable year-round and would be a point of enhancement for our economic development efforts in this region. Waterways provide efficient transportion and productivity that lowers inflation and reduces national deficits. Enhancement of our local waterways will make our region more attractive to new and expanding industry.

In addition, during the reauthorization of the Endangered Species Act, the Congress should amend the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened, as well as mandatory designation of critical habitat at the time the species is listed. The threat to list the Alabama sturgeon as an endangered species threatens the economic livelihood of several of our area industries. Therefore we should like this law closely reviewed.

Thank you in advance for your consideration.

LETTER FROM GLENN G. WIEGEL, ALABAMA RIVER PULP CO., INC., PERDUE HILL, AL

February 27, 1996

Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations
for Energy and Water Development
328 Hart Senate Office Building
U.S. Senate
Washington, D.C. 20510

Dear Sir:

My name is Glenn Wiegel. I am Manager of Traffic/Sales Distribution for the Alabama River Companies located on the Alabama River at Claiborne, Alabama.

We own and operate a docking/unloading facility on the Alabama River and in 1995 we received about sixteen (16) barge loads of fuel oil equivalent to roughly 320,000 barrels.

In the past we have loaded and shipped barge loads of woodpulp destined for the Port of Mobile. This practice was suspended, in part, due to the unreliability of river depth. A possible solution would be the construction of a new lock and dam south of Claiborne.

Increased user fees and taxes have a negative impact on the waterway use and we believe they should be discarded or reduced in order to lower the cost of freight and increase the volume.

We also believe the Endangered Species Act should be amended to more reasonable, balanced measures including valid scientific analysis and the consideration of economic impact of any proposed listing.

LETTER FROM MICHAEL D. THOMPSON, PRESIDENT, THOMPSON POWER SYSTEMS, MOBILE, AL

February 27, 1996

The Honorable Pete V. Domenici, Chairman
Senate Subcommittee on Appropriations for
Energy and Water Development
United States Senate
328 Hart Senate Building
Washington, D.C. 20510

Dear Senator Domenici:

The Coosa-Alabama River Waterway and the Port of Mobile are integral parts of the transportation network serving the State of Alabama. The Gulf Coast region's persistent economic growth, particularly in manufacturing and heavy industry, has created a dependency on reliable transportation facilities The Coosa-Alabama Waterway offers a means to transport bulk goods for interstate and international commerce, where over-the-road, rail and air transportation are not practical nor economical Interstate transportation has benefited from the introduction of intermodal facilities within the Waterway and the Port of Mobile

In 1995, Thompson Tractor Company performed over $16,000,000 00 of business in the marine industry Nearly all of this business is related to the Port of Mobile Many of the inland work boats that navigate the Coosa-Alabama Waterway are powered by engines sold and serviced by our company This business has not only profited our company, but has benefited the communities surrounding the Port and Waterway through the creation of several jobs within our organization involved in the maritime industry.

Thompson Tractor joins in the collective effort of many businesses along the Coosa-Alabama River to maintain and extend the waterway We support the Coosa-Alabama Improvement Association as it leads the effort in ensuring adequate funding for necessary projects to keep the Waterway and Port in operation As FY97 appropriations are determined, please consider that a reduction in funding will reduce the transportation capability of the Waterway through maintenance shortfalls The secondary affects of deficient transportation facilities may stagnate the region's manufacturing, industrial and economic growth

We appreciate your attention and wish you a successful year

PREPARED STATEMENT OF DONALD G. WALDON ON THE TENNESSEE-TOMBIGBEE WATERWAY

Mr. Chairman, the following comments are provided to you and your Committee for consideration in formulating the 1997 budgets for the U. S. Army Corps of Engineers and other agencies under your Committee's jurisdiction.

I am pleased to report that the Tennessee-Tombigbee Waterway's benefits continue to increase. Commerce has grown steadily each year reaching 8.7 million tons in 1995, an 800 thousand-ton increase over the previous year.

The waterway has helped attract some $2.5 billion of new industries and plant expansions. Last year, alone, nearly $600 million of new manufacturing located in the waterway corridor to take advantage of the transportation savings offered by Tenn-Tom.

Last year, the Waterway Development Council contracted with West Alabama University to determine the number of jobs generated by the Tennessee-Tombigbee since its completion. Based on information submitted by companies that use the waterway, this research concluded that the Tenn-Tom has helped create about 42,000 new jobs with an annual payroll of $1.1 billion. Although most impressive, these estimated impacts are considered very conservative since only about 60% of the waterway users responded to the University's survey.

The waterway's recreational and tourism benefits have far exceeded everyone's expectations. Over 2.5 million visitor-days of use are recorded each year. These recreational activities generate about $170 million of additional spending each year. Many small businesses have sprung up in the communities along the waterway as a result of these new activities.

Tenn-Tom's benefits will continue to increase in the future if the region's and the nation's economies grow and if the waterway is properly operated and maintained by the Corps of Engineers.

We greatly appreciate the past support of this Committee for the funding needed to operate the Waterway. However, I regret to inform you there is about $5.4 million of maintenance and repair work needed to be accomplished but now indefinitely deferred due to lack of funding.

I know that you agree that it would be "penny wise and pound foolish" not to provide sufficient funds to maintain the physical integrity of this project considering its sizeable capital investment. While we do not know at this time the level of funding recommended by the Administration, we request that you approve this year's level of funding for FY 1997 and an additional $3.7 million be appropriated to accomplish part of the $5.4 million of the deferred O&M work. Although all the $5.4 million of work must be eventually accomplished, we are restrained from requesting the entire amount knowing the difficult decisions you must make in balancing needs with the budgetary constraints you face this year. However, we must not allow the deferral of maintenance work to grow like topsy which will degrade the benefits of the project like Tenn-Tom and eventually result in major rehabilitation costs later on.

There are two other projects important to the commercial users of the Tenn-Tom. We recommend that $3 million be approved to continue engineering and design work on a new lock at Kentucky Dam on the Tennessee River. The existing lock, built in 1942, is one of the worst bottlenecks in the entire national waterway system. This level of funding will permit consideration of the project as a new construction start by the year 2000.

We also support the request made by the Warrior-Tombigbee Development Association for appropriations to construct mooring cells at Demopolis and Coffeeville Locks. Most of Tenn- Tom's commerce will benefit from these safety measures. We trust that you will be able to fund these two projects.

Before I close, I would be remiss not to express our appreciation for your strong support for the Appalachian Regional Commission and the Tennessee Valley Authority, especially last year when their continuation was threatened. These two agencies provide invaluable services and assistance to one of the most economically depressed regions in the nation. While considerable progress has been made, this region still lags behind the rest of the country in quality of life and economic well being. We recommend that these programs be funded at the maximum levels possible to help the people of this region enjoy a standard of living experienced by their fellow Americans.

Thank you.

PREPARED STATEMENT OF JAN JONES, EXECUTIVE DIRECTOR, TENNESSEE RIVER VALLEY ASSOCIATION

Mr. Chairman, Members of the Committee, thank you for allowing me the opportunity to submit this testimony for your consideration. I am Jan Jones, Executive Director of the Tennessee River Valley Association. Our organization - TRVA - is a non-partisan economic development association representing the citizens of the seven states which make up the Tennessee Valley.

I could not begin talking about energy and water development and the appropriations that make these possible without a word of special thanks to all of you who serve on this committee. TRVA members appreciate your wisdom in funding projects that have served to improve not only the nation's economy, but also the quality of life for people throughout the United States.

Mr. Chairman, children of the Depression as well as "baby boomers" understand the problems of dwindling budgets and limited resources and the need to make every dollar count. Like you, we realize the need to support those projects that provide the most benefit to the most people. For that reason, the Tennessee River Valley Association's membership has asked me to submit to you information in support of programs that have worked, are working and must continue to work.

In short, TRVA members have instructed me to submit testimony on behalf of the Tennessee Valley Authority and its FY97 budget. Since its founding more than 60 years ago, this innovative development agency has improved the lives of millions across the country. With TVA assistance, sharecroppers have become farm owners. Angry, swollen rivers have been harnessed to do a job. Dam has become a word that means jobs, energy, transportation and safety. People from throughout the United States and the world come to the Tennessee Valley to observe, to learn, to experience and to adopt the innovative TVA programs developed with monies you have appropriated.

We mention dams and rivers because they represent an important part of what TVA is all about. But, building dams, controlling rivers and maintaining lands where people live and work are only part of the story. No matter where you live in these United States, TVA has served as a teacher and role model in such areas as:

- energy generation and conservation
- pollution control
- clean water
- environmental waste
- waste management
- agricultural technology
- economic development
- stewardship of our natural resources

TVA is a vital part of our past, our present, our future. For this reason, the Tennessee River Valley Association members urge you to restore the Tennessee Valley Authority's funding to $130-140 million. Those of us who live and work in the Valley can testify that TVA funding nets $1 worth of value for every $1 invested. We ask you to continue your support for these programs that are our very lifeblood.

Thanks to funding appropriated last year, TVA has made great progress in correcting a very dangerous situation below Pickwick Lock and will complete the channel improvement project this summer.

*** CHICKAMAUGA LOCK PROJECT**

There now exists the real threat of shutting down the Upper Tennessee River. The Tennessee Valley Authority (TVA) is nearing completion of its Final Environmental Impact Statement (FEIS) of options to resolve navigation problems at Chickamauga Lock. The lock is located on the Tennessee River just upstream from Chattanooga. Completed in 1937, the aging lock has experienced severe structural deterioration caused by the expansion of the concrete used to build it. Engineering analysis shows that constant repairs can only keep the lock operational until 2005. In addition, the lock is small (60 by 360 feet) and can only accommodate one barge at a time whereas modern locks downstream can accommodate up to nine barges per lockage.

The FEIS, which will be completed by March 1996, focuses on two options: (1) permanent closure of the lock in 2005 and (2) construction of a new lock prior to closing the existing lock. We are now faced with an either/or situation. We must either close the old lock and shut off the Upper Tennessee River forevermore or construct a new lock so that on closing the old lock the river in its entirety can remain open and a viable part of our inland waterway system.

The preferred alternative is to construct a new 110 by 600 foot lock before it is necessary to close the existing lock. Upon approval of a decision by the TVA Board of Directors, design of the new lock could begin in late FY96 and construction completed by 2005. The cost of a new lock would be $211 million (1996 dollars), with an approximate 5 to 1 B/C ratio. About $4 million will be needed in FY97.

Permanent closure of the lock, which would involve removing the lock gates, placing a concrete plug in the lock chamber and reinforcing the lock walls in the immediate area of the plug placement, would cost approximately $6.8 million. There would be no cost-benefit to a permanent closure, only what savings that would be gained by loss of normal operating cost, which would be negligible. Closure of the lock would effectively abandon 290 miles of the nation's interconnected inland waterway system and cut off water transportation benefits to all of the upper Tennessee area. It would also curtail all recreational traffic movement between Chickamauga and points upstream. Permanent closure would have devastating economic consequences.

Mr. Chairman, this country is dependent on our inland waterway system for the continued movement of commerce. The loss or failure of any portion of that waterway network affects the immediate area in which it's located but also affects at least the 2/3 of the country which utilizes our inland waterways system.

The industries, which employs thousands, located upstream from Chickamauga, are affiliated with, receive goods from or ship products to other business and industries, both nationally and internationally. These industries depend on low cost, fuel efficient water transportation. Moving materials by barge limits truck traffic, which in turn reduces air pollution, vehicular accidents, highway maintenance, and the number of tires going to landfills. In addition to commercial traffic, recreational traffic through locks on the inland waterways adds substantially to each area's economy.

Mr. Chairman, we earnestly encourage this Committee's support of continued funding for the Chickamauga Lock Project in TVA's FY97 budget.

- **KENTUCKY LOCK ADDITION PROJECT**

Situated near the mouth of the Tennessee River, Kentucky Lock provides the gateway from the Northeast to the Southeast, Gulf of Mexico and the World. Kentucky Lock also acts as the door to a backup system for the inland waterway. In times of drought, as in 1988, an alternate route to the lower Mississippi is available through Kentucky Lock to the Tennessee-Tombigbee Waterway and the Gulf of Mexico. This is economically important as well as beneficial to national defense.

Most barge traffic uses Kentucky Lock instead of nearby Barkley Lock because the lower Tennessee River below Kentucky Lock is $0.50/ton cheaper than the narrow, sinuous, 50% one-way traffic lower Cumberland River below Barkley Lock. The Kentucky Lock/Tennessee River route is cheaper, faster and much safer to navigate which causes congestion and delay at Kentucky Lock.

In addition, Kentucky's 600' chamber is too small to handle a modern 15-barge tow without two lockages. This greatly increases the processing time, further compounds the problem of congestion, and gives Kentucky Lock one of the highest transit times in the inland waterways. Transit times through either Kentucky or Barkley Locks are significantly increased when either lock is closed for maintenance.

Major maintenance at the existing Kentucky Lock will require the lock be closed for a 130 days in 2009 and 130 days in 2010. During the two closure periods, delays at Barkley could exceed 150 hours. Without the new Kentucky Lock in place, by the year 2009 and 2010 down time will cost industry up to $250,000,000.

In 1992 the Nashville District produced a feasibility report titled "Lower Cumberland and Tennessee Rivers - Final Feasibility Study - Kentucky Lock Addition," which recommended the addition of a new 110 foot by 1200 foot lock estimated to cost $448 million at October 1991 prices ($492 million at October 1995 prices).

The Feasibility Report is at the Assistant Secretary of the Army for Civil Work's office awaiting their recommendation to congress for authorization. The next step is authorization in the Water Resources Development Act. Congress appropriated $500,000 in FY93 for continued design and engineering. These funds were expended for reanalysis of the project formulation. The FY94, FY95 and FY96 Appropriations Acts directed that $2,000,000 for each of those years be expended for design activities, hydraulic modeling and geotechnical explorations. In 1995 the Nashville District completed Innovative Design/Cost Reductions studies which reduced the total construction cost by $97,100,000. The current cost estimate is $395.0 million (October 1995) and $530 million Fully Funded with a current B/C ratio of 2.4 to 1.

We support a continuation of funding for the Kentucky Lock Project in the U.S. Army Corps of Engineers FY96 budget.

In building the interconnected inland waterway system, the federal government has created an invaluable economic development asset that has paid for itself many times over. The national economy has grown because of it and depends heavily on it to continue to develop. We need to recognize that the costs of maintaining and improving the waterway system, while expensive, are true investments in the future of the economy of this country.

Mr. Chairman, we appreciate the excellent work of this important Committee. It is an honor to have the opportunity to appear before you today and we respectfully urge that the Committee give thoughtful consideration to our requests. Thank you.

FACT SHEET

CHICKAMAUGA LOCK:
THE PROBLEM, THE OPPORTUNITIES

contact:
Jan Jones (205) 355-4660

the situation	The Tennessee Valley Authority (TVA) is nearing completion of its Final Environmental Impact Statement (FEIS) of options to resolve navigation problems at Chickamauga Lock. The lock is located on the Tennessee River just upstream from Chattanooga. Completed in 1937, the aging lock has experienced severe structural deterioration caused by concrete growth. Constant repairs are required to keep the lock in operation. Engineering analysis shows that repairs can only keep the lock operational until 2005. In addition, the lock is small (60 by 360 feet) and can only accommodate one barge at a time whereas modern locks downstream can accommodate up to nine barges per lockage.
what are the options?	The FEIS focuses on two options: (1) permanent closure of the lock in 2005 and (2) construction of a new lock prior to closing the existing lock.
what is being done?	TVA plans to complete the FEIS by March 1996. The preferred alternative is to construct a new 110 by 600 foot lock prior to closing the existing lock. Upon approval of the record of decision of the TVA Board of Directors, design of the new lock could begin in late fiscal year 1996.

what would it cost and who pays for it?	The cost of a new lock would be $211 million (1996 dollars). The project would take 10 years to design and construct. Funding would be by Federal appropriations.
what is the value of the lock?	Industries located upstream from Chickamauga Lock depend on low cost, fuel efficient water transportation for the transport of raw materials. A reliable waterway makes these plants competitive with other plants in the Nation as well as attracting new industry to the region. Moving materials by barge limits truck traffic which in turn reduces air pollution, vehicular accidents, highway maintenance, and the number of tires going to landfills. In addition, recreational traffic through the lock adds substantially to the region's economy every year with special events like the River Bend Festival, Fall Color Cruise and VOL Navy.
where can I get more information?	If you or your organization would like more information, and/or speakers regarding Chickamauga Lock, contact TRVA at (205) 355-4660.

TVA'S ENVIRONMENTAL RESEARCH CENTER

TVA's Clean Water Initiative is doing innovative and economical activities to prevent pollution in the region's lakes, river, and steams. The idea is to protect the water quality so that present and future generations can enjoy the economic and recreational benefits of clean water. TVA has set up River Action Teams (RATS) in several watersheds in the region to help protect the quality of the water. TVA's RATS are building partnerships with local people and those that work with them from other State and Federal agencies. Together, they're trying to get the most environmental benefit from each dollar spent in their areas.

The RAT's efforts are paying off. Last year, 22,500 volunteer hours were logged in monitoring and clearing up lakes, rivers, and streams. RATs helped start over 40 local coalitions to tackle water quality problems, stabilized 9,300 feet of shoreline, and implemented 43 best management practices such as building constructed wetlands, fencing, and steambank revegetation. The partnerships are paying off. Water quality is being improved and the TVA RATS are accomplishing more with the funding they get from Congress.

TVA's RAT team in the Chickamauga-Nickajack area is working with a nonprofit citizens group to reduce acid-mine drainage by installing treatment systems. They're also stabilizing streambanks to help prevent nonpoint source pollution and sedimentation of the lakes. The partners are also working with schools and communities in the watershed to enlist their help in preventing and solving environmental problems.

TVA's work is new, innovative, and is being recommended for use in other regions. The EPA, USDA, and other agencies have noticed TVA's work and have become partners in the region. This makes all their work more effective and prevents duplication.

In addition, the national organization, Water Quality 2000, has evaluated TVA's work in its Clean Water Initiative. The group is a coalition of over 70 different national organizations representing public and private entities across the nation. Their evaluation concluded that TVA's Clean Water Initiative should be expanded, promoted, and replicated in other watersheds.

It is this kind of national attention that shows how effective TVA is using the funding your committee provides. What TVA is doing in the region to protect the quality of water in the regions lakes, rivers, and streams can be used all across the country.

So it is with TVA's Environmental Research Center at Muscle Shoals, Alabama. It is a fact that TVA operates the nation's most effective public research laboratory for inventing new ways to solve agricultural, municipal, and industrial pollution problems. It is truly a national organization and the research that they conduct there is returning excellent benefits. Throughout its history, TVA has been heavily involved in helping keep agriculture sustainable, competitive, and internationally prominent. Its past work in agricultural research helped make U.S. agriculture the envy of the world.

Today, the Environmental Research Center is discovering new and lower cost ways to reduce pollution of air, land, and water. If our region and nation are to keep the economy growing, we must have new technologies to operate our farms, factories, and cities in environmentally responsible ways. The research that your funding provides, is already making progress in helping the nation avoid a crisis in managing agricultural, municipal, and industrial wastes.

The leaders of the Environmental Research Center are looking for ways to increase their funding from private businesses and other agencies. And they have some excellent technologies and technical assistance to provide in cleaning up contaminated sites. The Center should be encouraged to speed up efforts to get additional funding to find the new ways of solving pollution problems that our nation so sorely needs.

There is one area of research that TVA is leading the nation on. It is responding to the national concern about low-level ozone problems in many highly populated regions of the country. Most of us think about how important the ozone layer is in the upper atmosphere. It protects us from the very harmful rays of the sun. The low-level ozone is a bad factor and I call it the bad ozone. It hovers in our major cities and in some rural areas and is causing a lot of medical problems such as respiratory ailments. It seems to be getting more serious each year.

TVA's Environmental Research Center is leading the Southern Oxidant's Study. This is really a national study cosponsored by TVA, NOAA, EPA, USDA, DOE, leading universities, and several industry groups. They have targeted the Nashville, Tennessee area as a site to monitor low-level ozone and try to determine its sources and find ways to reduce its effect on the population. They are finding that this bad ozone is causing agriculture crop loses and is affecting economic growth. Bad ozone can be one of the reasons that economic expansion is limited in some industrial areas. The air is already so bad that some cities can't approve more expansion.

TVA's work in this area is vital to the nation. We must find the exact cause of the formation of this bad ozone and find reasonsable ways to solve the problem.

TVA's Environmental Research Center also has a constructed wetlands research facility. The work they're doing there is helping find ways to make constructed wetlands more efficient in cleaning up waste streams from industry and agriculture. EPA, USDA, and leading universities are cooperating in this work and sanction what TVA is doing. Constructed wetlands offer a very real and efficient way to treat many of our wastes in the region and nation.

The Environmental Research Center is also finding ways to help TVA's RATS prevent and clean up the pollution in lakes, rivers, and streams. They're working with farmers, USDA, EPA, and others to find ways to capture nutrients and pesticides from agricultural runoff from entering lakes, rivers, and streams. They're looking for ways to convert animal wastes into beneficial products ... solving a waste problem and creating some economic value. And the Center is working with DOD and DOE to clean up a variety of military sites around the nation where severe contamination is found.

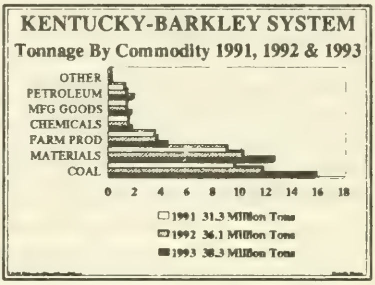
All these examples of their work clearly show the national asset of TVA's Environmental Research Center. Their scientists are making great strides in helping solve agricultural, municipal, and industrial pollution problems. But there's a lot of work yet to be done.

The work TVA is doing to find ways to promote sustainable economic progress is sound and is good for the nation. Although TVA is a regional organization, its work has impact throughout the nation. Let's look upon it as a national asset that is helping find new and more efficient ways to keep our farms, factories, and cities economically sound and environmentally acceptable.

KENTUCKY LOCK ADDITION PROJECT UPDATE

Proposed Project:

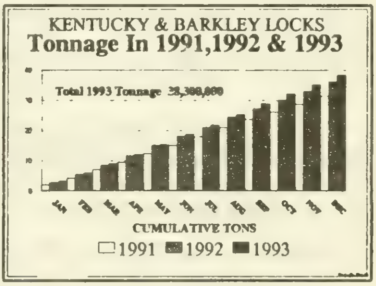
Construction of a 110'x1200' new lock chamber adjacent to the existing lock at the Kentucky Project on the Tennessee River. Cost is $395,000,000 in Oct 95 dollars. One-half of the construction funds would come from the Inland Waterways Trust Fund. The project would create about 500 jobs during the peak seven years of construction. The project has a 2.4 to 1 B/C.



The Problem at Kentucky Lock:

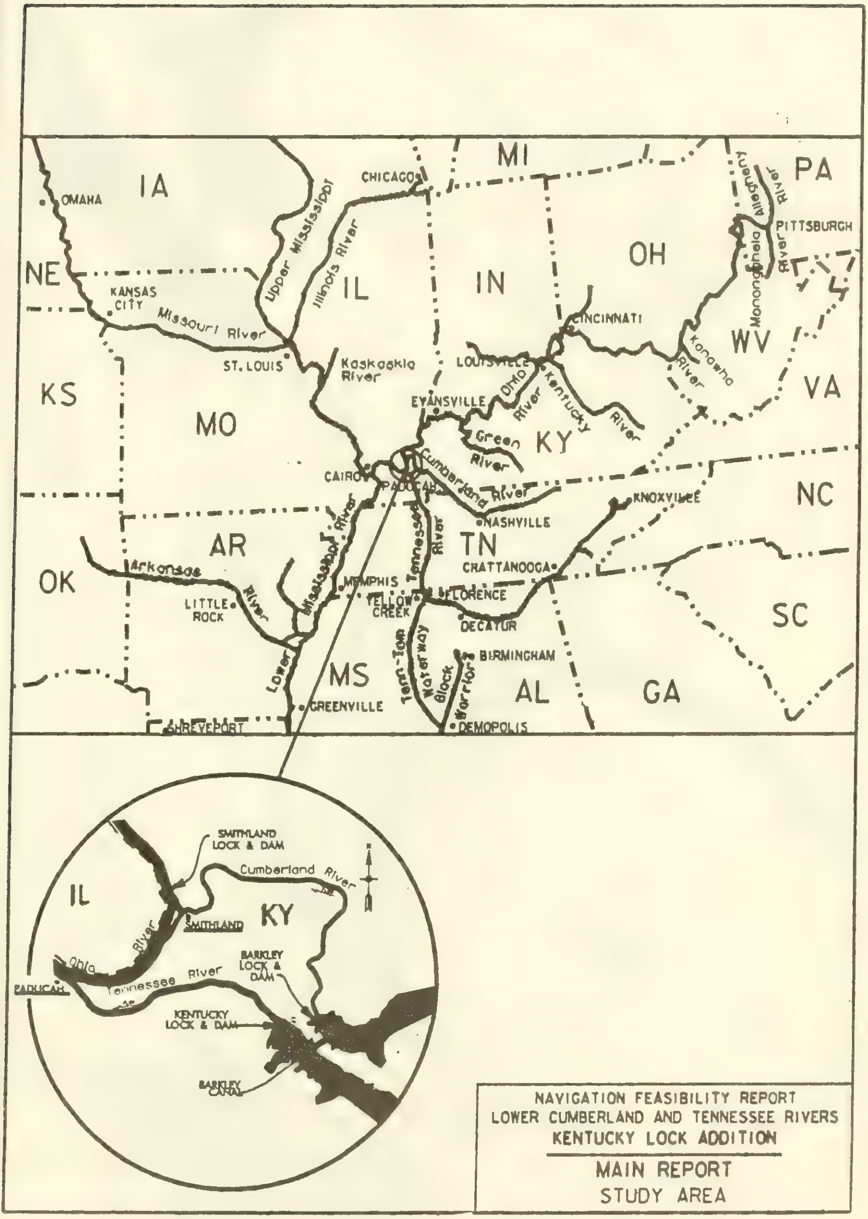
Most barge traffic uses Kentucky Lock instead of nearby Barkley Lock because the lower Tennesse River below Kentucky Lock is $0.50/ton cheaper than the **narrow, sinuous, 50% one-way traffic** lower Cumberland River below Barkley Lock. The Kentucky Lock/Tennessee River route is cheaper, faster and much safer to navigate. This causes congestion and delay at Kentucky Lock.

In addition, Kentucky's 600' chamber is **too small to handle a modern 15-barge tow** without two lockages. This greatly increases the processing time and further compounds the problem of congestion and gives Kentucky Lock one of the highest transit times in the inland waterways. Transit times through either Kentucky or Barkley Locks are significantly increased when either lock is closed for maintenance.



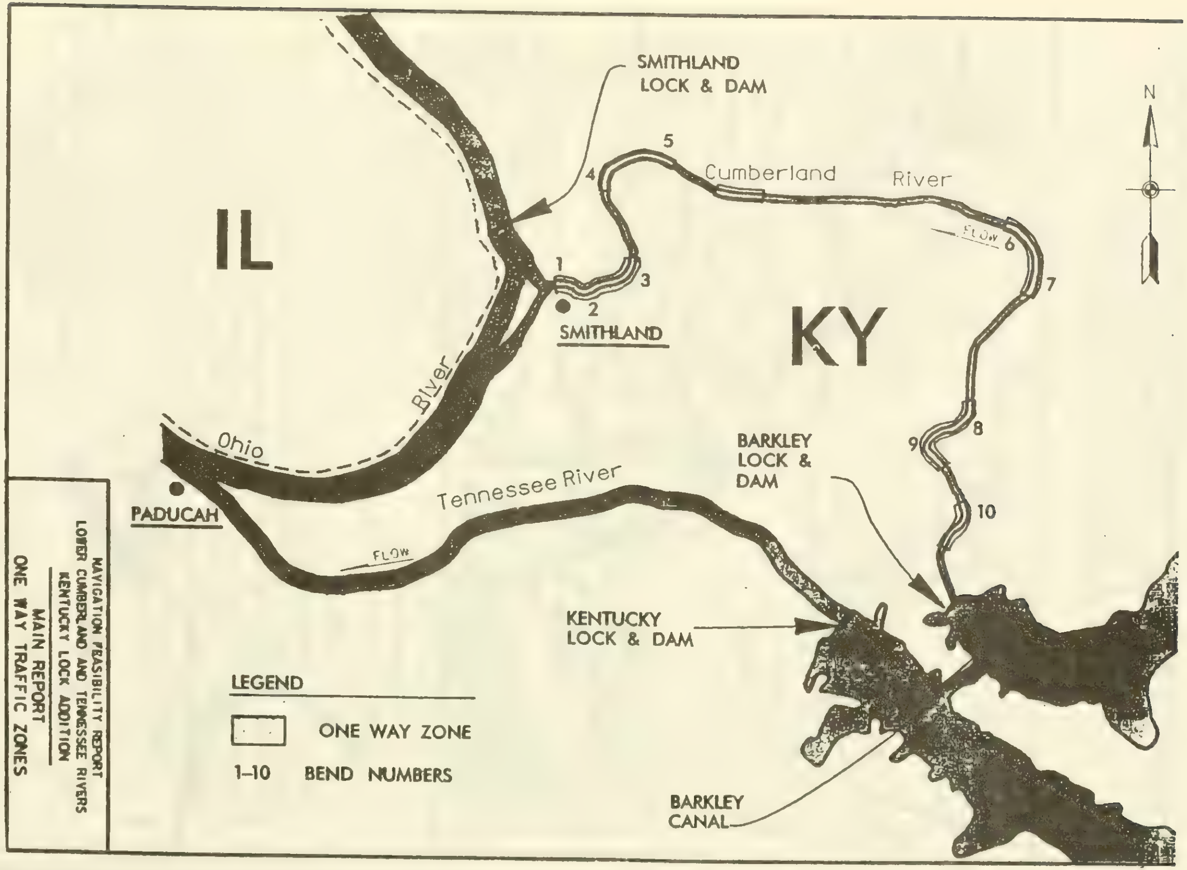
Status:

The Feasibility Report, approved 1 June 1992 by the Chief of Engineers, is at the Assistant Secretary of the Army for Civil Works office awaiting thier recommendation to Congress for authorization. The next step is authorization in the 1996 Water Resources Development Act. Congress appropriated $500,000 in FY 1993 for continued design and engineering. These funds were expended for reanalysis of the project formulation. The FY94, FY95, and FY96 Appropriations Acts directed that $2,000,000 for each of those years be expended for design activities, hydraulic modeling and geotechnical explorations. In 1995 the Nashville District completed Innovative Design/Cost Reductions studies which reduced the total construction cost by $97,000,000



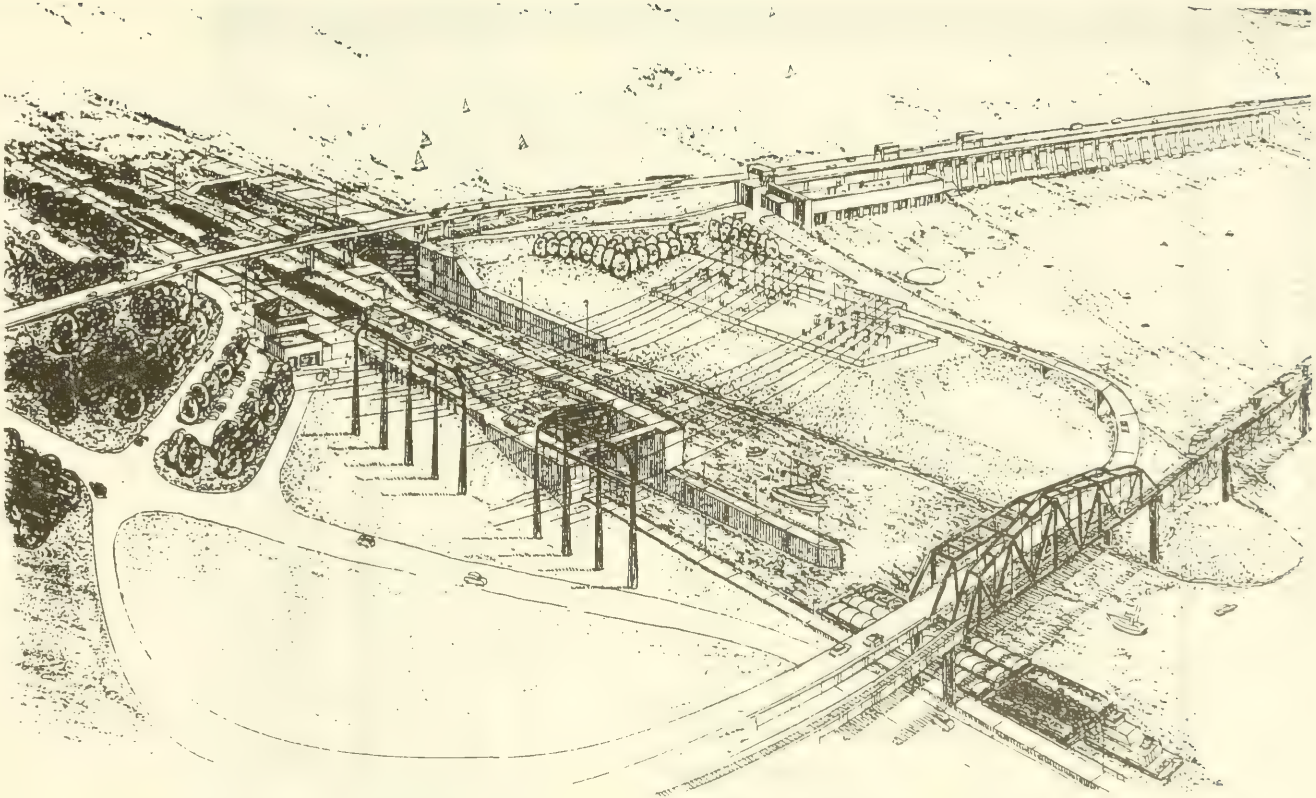
NAVIGATION FEASIBILITY REPORT
LOWER CUMBERLAND AND TENNESSEE RIVERS
KENTUCKY LOCK ADDITION

MAIN REPORT
STUDY AREA



NAVIGATION FEASIBILITY REPORT
LOWER CUMBERLAND AND TENNESSEE RIVERS
KENTUCKY LOCK ADDITION

MAIN REPORT
ONE WAY TRAFFIC ZONES



PROPOSED LOCK ADDITION • KENTUCKY RESERVATION

KENTUCKY LOCK ADDITION
PROJECT UPDATE

SEQUENCE OF EVENTS

Authority for the Feasibility Report:

October 2, 1972 resolution by the Senate Committee on Public Works and September 9, 1982 resolution by Senate Committee on the Environment and Public Works

Dates of Corps Reports:

January 1992	Division Engineer's Report/Public Notice:
March 1992	Board of Engineers for Rivers & Harbors
May 1992	Proposed Chief of Engineers' Rept to States and Agencies
June 1992	Chief of Engineers's Report
May 1994	Draft Limited Reevaluation Report to Headquarters
June 1995	Innovative Design/ Cost Reduction Report

The Kentucky Lock Addition Project is currently in the PED*Phase.
*(Pre-Construction Engineering & Design)

PED funds were added by Congress:

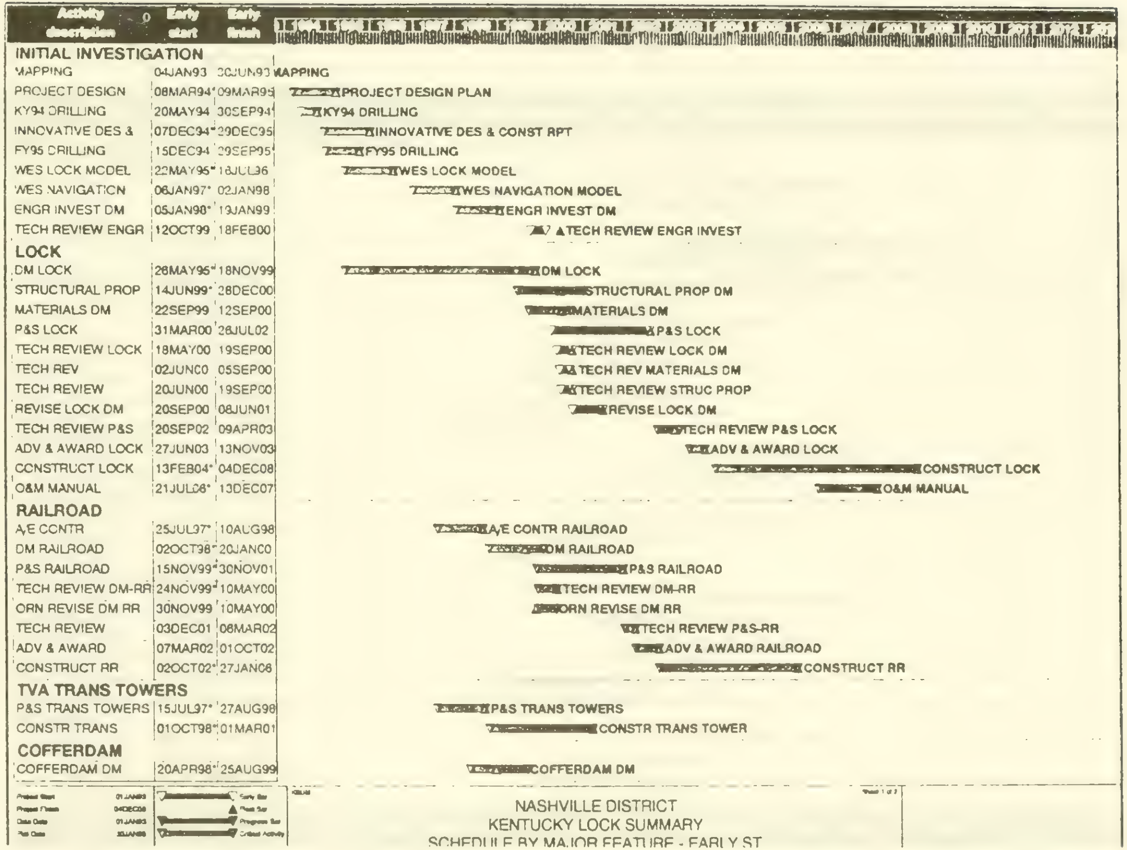
FY 92	$ 500,000	(Not allocated to the District because Final Feasibility approval did not occur until June 1992
FY 93	$ 500,000	Limited Reevaluation Report
FY 94	$ 2,000,000	Initial Exploration & Design
FY 95	$ 2,000,000	Cost Reduction & Innovative Design
FY 96	$ 2,000,000	WES Studies & Lock Design Memorandum

Future Sequence of Events:

FY 97 - FY 98	Continue engineering & design, complete WES navigation and lock physical models, do plans & specs for relocation of TVA transmission towers in preparation for a construction contract in October 1998.

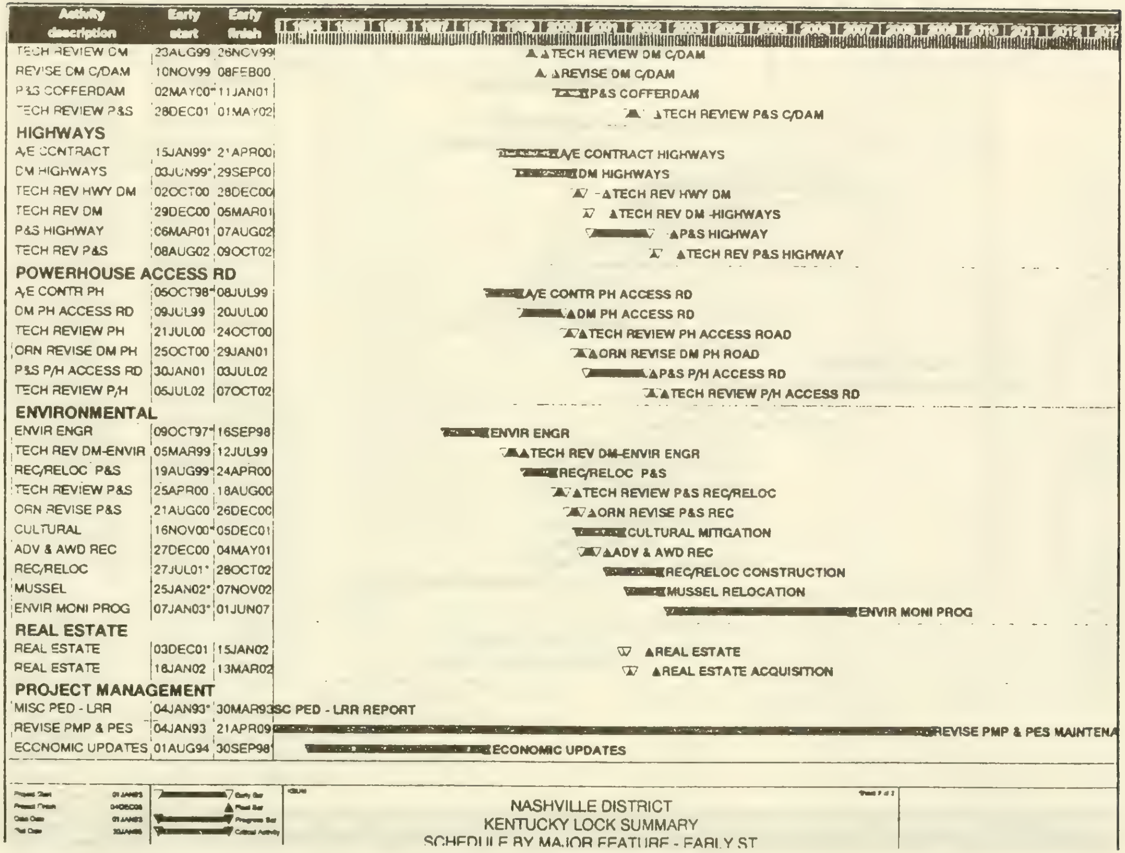
The following schedules are included:

Grouped Early Start Schedule by Major Feature
Construction Contracts Schedule



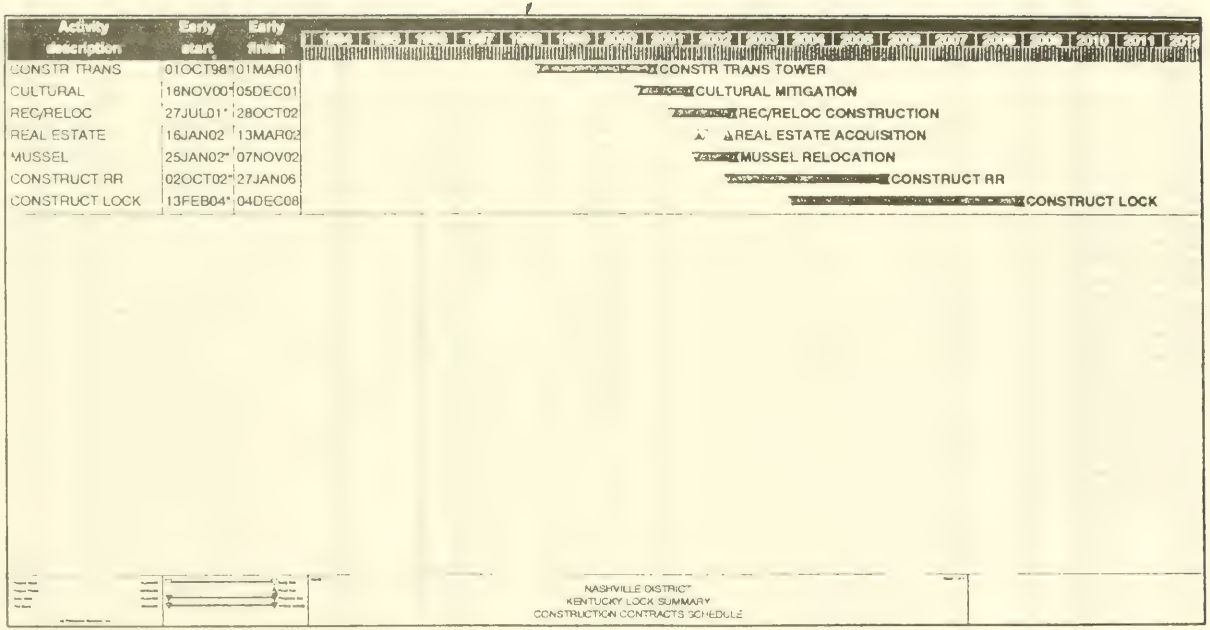
Activity description	Early start	Early finish
INITIAL INVESTIGATION		
MAPPING	04JAN93	30JUN93
PROJECT DESIGN	08MAR94	09MAR95
KY94 DRILLING	20MAY94	30SEP94
INNOVATIVE DES &	07DEC94	29DEC95
FY95 DRILLING	15DEC94	29SEP95
WES LOCK MODEL	22MAY95	18JUL96
WES NAVIGATION	06JAN97	02JAN98
ENGR INVEST DM	05JAN98	13JAN99
TECH REVIEW ENGR	12OCT99	18FEB00
LOCK		
DM LOCK	28MAY95	18NOV99
STRUCTURAL PROP	14JUN99	28DEC00
MATERIALS DM	22SEP99	12SEP00
P&S LOCK	31MAR00	26JUL02
TECH REVIEW LOCK	18MAY00	19SEP00
TECH REV	02JUN00	05SEP00
TECH REVIEW	20JUN00	19SEP00
REVISE LOCK DM	20SEP00	08JUN01
TECH REVIEW P&S	20SEP02	09APR03
ADV & AWARD LOCK	27JUN03	13NOV03
CONSTRUCT LOCK	13FEB04	04DEC08
O&M MANUAL	21JUL06	13DEC07
RAILROAD		
A/E CONTR	25JUL97	10AUG98
DM RAILROAD	02OCT98	20JAN00
P&S RAILROAD	15NOV99	30NOV01
TECH REVIEW DM-RR	24NOV99	10MAY00
ORN REVISE DM RR	30NOV99	10MAY00
TECH REVIEW	03DEC01	08MAR02
ADV & AWARD	07MAR02	01OCT02
CONSTRUCT RR	02OCT02	27JAN06
TVA TRANS TOWERS		
P&S TRANS TOWERS	15JUL97	27AUG98
CONSTR TRANS	01OCT98	01MAR01
COFFERDAM		
COFFERDAM DM	20APR98	25AUG99

NASHVILLE DISTRICT
KENTUCKY LOCK SUMMARY
SCHEDULE BY MAJOR FEATURE - EARLY ST



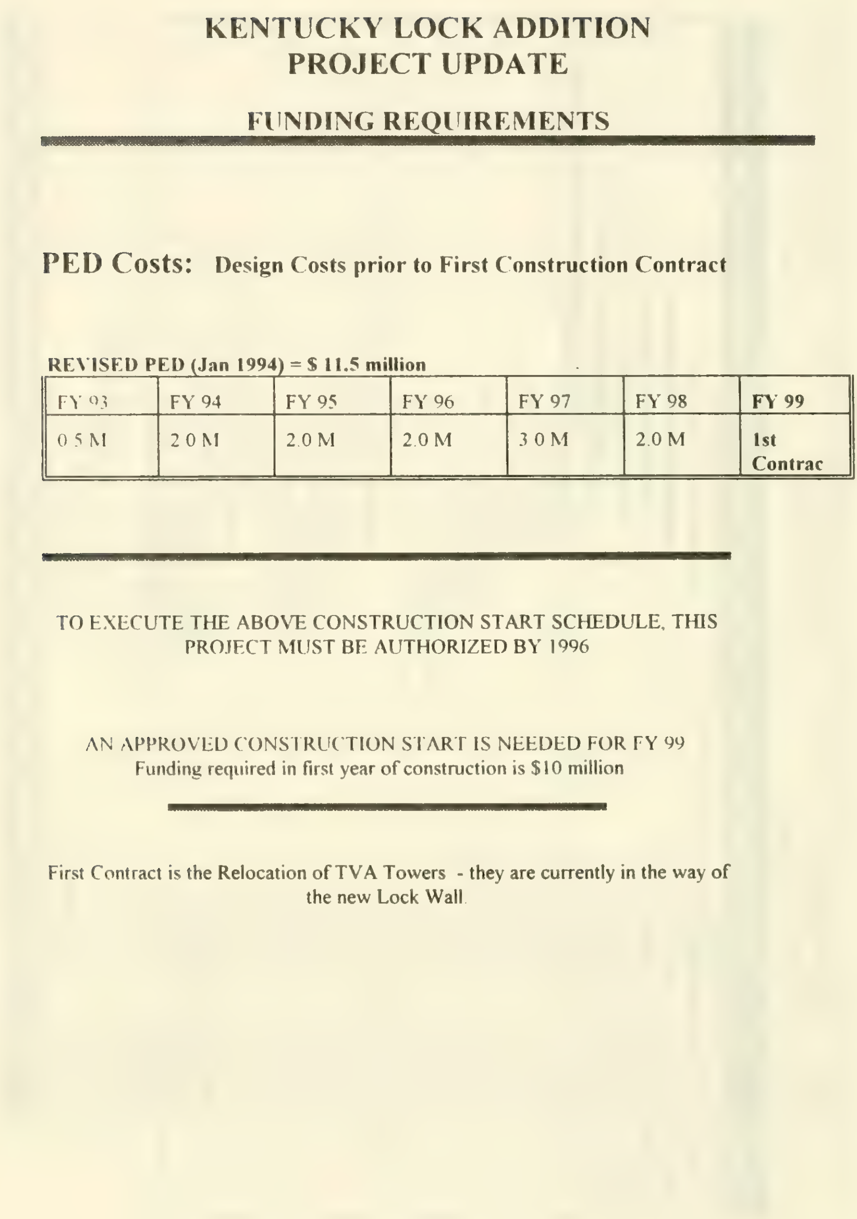
Activity description	Early start	Early finish
TECH REVIEW DM	23AUG99	26NOV99
REVISE DM C/DAM	10NOV99	08FEB00
P&S COFFERDAM	02MAY00*	11JAN01
TECH REVIEW P&S	28DEC01	01MAY02
HIGHWAYS		
A/E CONTRACT	15JAN99*	21APR00
DM HIGHWAYS	03JUN99*	29SEP00
TECH REV HWY DM	02OCT00	28DEC00
TECH REV DM	29DEC00	05MAR01
P&S HIGHWAY	06MAR01	07AUG02
TECH REV P&S	08AUG02	09OCT02
POWERHOUSE ACCESS RD		
A/E CONTR PH	05OCT98*	08JUL99
DM PH ACCESS RD	09JUL99	20JUL00
TECH REVIEW PH	21JUL00	24OCT00
ORN REVISE DM PH	25OCT00	29JAN01
P&S P/H ACCESS RD	30JAN01	03JUL02
TECH REVIEW P/H	05JUL02	07OCT02
ENVIRONMENTAL		
ENVIR ENGR	09OCT97*	16SEP98
TECH REV DM-ENVIR	05MAR99	12JUL99
REC/RELOC P&S	19AUG99*	24APR00
TECH REVIEW P&S	25APR00	18AUG00
ORN REVISE P&S	21AUG00	26DEC00
CULTURAL	16NOV00*	05DEC01
ADV & AWD REC	27DEC00	04MAY01
REC/RELOC	27JUL01*	28OCT02
MUSSEL	25JAN02*	07NOV02
ENVIR MONI PROG	07JAN03*	01JUN07
REAL ESTATE		
REAL ESTATE	03DEC01	15JAN02
REAL ESTATE	18JAN02	13MAR02
PROJECT MANAGEMENT		
MISC PED - LRR	04JAN93*	30MAR93
REVISE PMP & PES	04JAN93	21APR09
ECONOMIC UPDATES	01AUG94	30SEP98

NASHVILLE DISTRICT
KENTUCKY LOCK SUMMARY
SCHEDULE BY MAJOR FEATURE - EARLY ST



Activity description	Early start	Early finish
CONSTR TRANS	01OCT98	01MAR01
CULTURAL	16NOV00	05DEC01
REC/RELOC	27JUL01	28OCT02
REAL ESTATE	16JAN02	13MAR02
MUSSEL	25JAN02	07NOV02
CONSTRUCT RR	02OCT02	27JAN06
CONSTRUCT LOCK	13FEB04	04DEC08

NASHVILLE DISTRICT
KENTUCKY LOCK SUMMARY
CONSTRUCTION CONTRACTS SCHEDULE



KENTUCKY LOCK ADDITION PROJECT UPDATE

FUNDING REQUIREMENTS

PED Costs: **Design Costs prior to First Construction Contract**

REVISED PED (Jan 1994) = $ 11.5 million

FY 93	FY 94	FY 95	FY 96	FY 97	FY 98	**FY 99**
0.5 M	2.0 M	2.0 M	2.0 M	3.0 M	2.0 M	**1st Contrac**

TO EXECUTE THE ABOVE CONSTRUCTION START SCHEDULE, THIS PROJECT MUST BE AUTHORIZED BY 1996

AN APPROVED CONSTRUCTION START IS NEEDED FOR FY 99
Funding required in first year of construction is $10 million

First Contract is the Relocation of TVA Towers - they are currently in the way of the new Lock Wall.

KENTUCKY LOCK ADDITION
PROJECT UPDATE

PROJECT ECONOMICS

Kentucky Lock will generate $55.1 million
in average annual benefits to the nation.

Kentucky Lock will cost an average annual $22.5 million

Net annual NED benefits are $32.6 million.

The B/C Ratio is 2.4

Project Cost : $395 million (Oct 1995 dollars)
: $530 million Fully Funded

Major Maintenance at Kentucky Lock will require closing the lock FOR 130 days in 2009 and 130 days in 2010. Barkley Lock is scheduled for periodic maintenance in 2010.

Without the new Kentucky Lock in place, the 2009 &2010 down time will cost industry up to $250,000,000.

KENTUCKY LOCK ADDITION
PROJECT UPDATE

KENTUCKY-BARKLEY SYSTEM OF LOCKS

KENTUCKY LOCK is 110' x 600', has a normal lift of 56 feet, and has five hydroelectric units in the adjacent dam It was placed in operation in 1942 It will pass an **8-barge tow** in one lockage

BARKLEY LOCK is 110' x 800', has a normal lift of 57 feet, and has four hydroelectric units in the adjacent dam. It was placed in operation in 1964
It will pass an **11-barge tow** in one lockage.

NAVIGATION CONDITIONS & LOCK OPERATION

EXISTING CONDITIONS (1995).
Barkley hydropower plant is currently operated to benefit navigation on the lower Cumberland River with the following procedures:

* Changes in generation are limited to one hydropower unit (35 mw) per hour to dampen the rate of change in downstream velocities and tailwater levels.

* No upper limit, can generate power by releasing up to 52,000 cfs. Many tows trying to operate on the lower Cumberland cannot navigate with the these flow release. generate

* No helper boats at Kentucky Lock

WITHOUT PROJECT CONDITIONS: To be Implemented 2000 - 2008:

* **Limit upper level discharges at Barkley Lock to 27,000 cfs** during Kentucky Lock closures. And limit upper level to 40,000 cfs during normal operating conditions. **This will cost $15,400,000 in lost hydropower benefits***

* **Institute HELPER BOATS** at Kentucky Lock. 1 boat upstream and 1 boat downstream at a **cost of $2,600,000.***

With the above measures in place, the delay cost would still exceed $23 million per year.

*(Ave. Annual costs, Oct 1993 dollars).

PROJECT UPDATE

KENTUCKY-BARKLEY SYSTEM OF LOCKS

COMPARISON OF THE LOWER TENNESSEE & CUMBERLAND RIVERS

LOWER TENNESSEE RIVER:

- VERY WIDE RIVER
- 22 MILES TO THE OHIO RIVER
- NO BENDWAYS
- NO ONE WAY TRAFFIC ZONES
- NO EFFECTS FROM HYDROPOWER RELEASES ON NAVIGATION

LOWER CUMBERLAND RIVER:

- VERY NARROW AND WINDING RIVER
- 32 MILES TO THE OHIO RIVER
- HAS 10 DIFFICULT BENDWAYS
- 50% OF THE RIVER IS ONLY ONE-WAY TRAFFIC
- COSTS $ 0.50 PER TON MORE TO NAVIGATE
- ADVERSE EFFECTS FROM HYDROPOWER RELEASES
- HIGHER INCIDENCE OF FOG

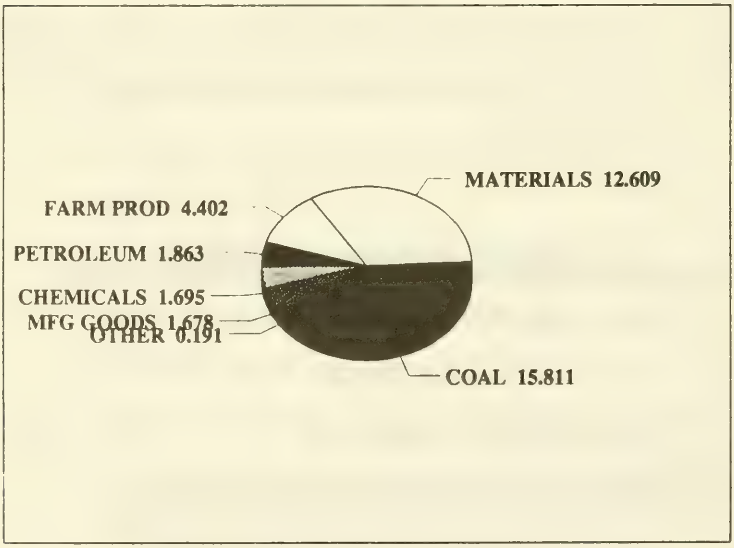
KENTUCKY LOCK ADDITION
PROJECT UPDATE

REGIONAL IMPACT OF KENTUCKY LOCK

* KENTUCKY LOCK is the gateway between the Mississippi, Illinois, Missouri and Ohio Rivers and the Tennessee Valley. (See accompanying map).
* NEARLY HALF of all the traffic thru Kentucky Lock IS COAL.

* OVER 15 MILLION TONS OF COAL FEED to TVA POWER PLANTS

* TWELVE MILLION TONS OF AGGREGATES provide building materials FOR construction in TENNESSEE AND THE SOUTHEAST.



KENTUCKY LOCK COMMODITIES IN 1993 MILLION TONS

KENTUCKY LOCK ADDITION
PROJECT UPDATE

QUESTIONS & ANSWERS

Q1 Why can't the existing 600' lock at Kentucky be extended to 1200'?

A1 It could not be extended upstream because of geological conditions. Just above the existing lock is a deep drop-off in the founding level rocks, making anchoring the lock walls impractical and very expensive.

It could be extended downstream geologically, but the existing lock would have to be taken out of service FOR up to 4 years to extend the lock forcing all traffic over to Barkley Lock. Experience and economic analysis says this would drive much of the traffic off the system to other more expensive modes and force towing companies out of business.

Q2 Why does the railroad have to be relocated and the highway raised?

A2 When the new lock is constructed it will bring the upper pool in under the existing railroad and highway bridges. Because the lift is 56 feet, the new pool would cause the tows to have little or no clearance under the bridges. The railroad must be relocated downstream and the highway raised to alleviate this conflict.

Q3 Why can't you fix the bendways and make more traffic go down the Cumberland River?

Q4 Modifying some or all ten bendways on the lower Cumberland River would reduce delays in the bends, slightly increase the average tow speed, and improve navigational safety. The cost of using the lower Cumberland would still be higher than the lower Tennessee. This approach does nothing to address the lack of capacity during closures and only partially addresses the general lack of system capacity. In addition, the modifications would cause significant impacts to both aquatic and cultural resources. This plan would cost $49.5 million (Oct 91 dollars) and have a negative B/C. The net incremental benefits are $ -2.6 million (Oct 91 dollars).

PREPARED STATEMENT OF HON. DAVID M. BEASLEY, GOVERNOR OF SOUTH CAROLINA

Mr. Chairman, members of the Committee, thank you for this opportunity to address you regarding the 1997 Water and Energy Appropriations Bill.

I would like to share some concerns the citizens of South Carolina have with regard to this legislation.

While I will limit the scope of this statement, I would like to submit for the record more detailed information for your perusal and reference as desired. Included in this material are letters to the Committee from the Directors of the South Carolina Department of Natural Resources and the State Ports Authority, as well as our State Energy Office, emphasizing the importance of this Committee's action on the State of South Carolina.

As you are no doubt aware, South Carolina's economy is very dependent upon its energy and water resources.

Our lakes and reservoirs are critical to hydroelectric power production; intercoastal waterways and ports are key economic development components; and our beaches and shoreline are essential to recreation and tourism.

I would like to lend South Carolina's strong support to the budget request submitted by the U.S. Army Corps of Engineers (USACE). South Carolina has enjoyed an outstanding partnership with the Corps of Engineers. Together, we have numerous projects underway, or proposed, that are principal components of our economic well-being.

Detailed studies are mandatory to the maintenance and upkeep of our waterways, and I am disappointed this bill provides no funding for new studies. The material submitted for the record details each needed study, all of which have the concurrence of the Corps of Engineers. I urge you to reconsider zeroing out the funding for these necessary studies.

Especially critical to South Carolina is the great Port of Charleston, a true national asset. The Port of Charleston is home to arguably the most efficient container terminal in the world today.

In terms of volume, it ranks just behind the combined Port of New York and New Jersey. Maintaining the Port's state-of-the-art harbor capability is in the best interest of not only South Carolina, but through its significant international trade, the entire nation. Federal support of all channel maintenance is vital.

Related to our water resources, the Aquatic Plant Control (APC) Program ranks among our greatest concerns. APC is a national program that provides for the control and progressive eradication of various noxious aquatic plant species in navigable waters, tributaries, streams, and channels. It is a 50-50 cost share with the State, and without continued Federal support, there is eminent danger of losing the productivity of our waterways.

To date, more than $20 million has been spent in South Carolina, half out of State agency revenues, but there is currently only $2.5 million in Federal funding projected for 1997. Last year, Congress added $4.0 million to the program, but most of the money was earmarked for research. South Carolina must have federal assistance to continue our eradication efforts or face more instances such as that at our Lake Moultrie site where aquatic weeds have already fouled hydro-electric turbines. Proposed cuts in the aquatic plant control share program comes at a pivotal time in our management efforts. I urge you to continue funding this essential program, and to earmark funds for treatment, not just research.

Another essential program the Corps of Engineers has very successfully managed in South Carolina is the Continuing Authorities Program (CAP). This is a cost-shared program between the federal government and a non-federal sponsor.

The CAP allows the Corps of Engineers to plan, design, and construct certain types of water resources improvements without specific Congressional authorization. The Charleston District Corps of Engineers Office currently has eight requests for assistance which are on hold due to lack of federal funds.

In continuing CAP funding, I also urge guidance be provided that would preserve the integrity of discretionary use of these funds and discourage the "earmarking" of revenue for individual projects as a condition of its existence.

The continued viability of the Corps of Engineers Operations and Maintenance (O&M) Program is clearly in the national interest. Designed to preserve the nation's existing infrastructure, the program provides for the operation and maintenance of federal projects such as navigation, flood control, multiple purpose power, national emergency preparedness and recreation facilities at completed properties. USACE currently operates and maintains ten navigation sites within South Carolina, with work including dredging, diking, surveying and powerhouse operation. I urge continued funding at requested levels for this critical program and its essential services.

As I mentioned previously, these programs and other major initiatives are reflected in greater detail in our material submitted for the record.

In closing, I would like to take a moment to address our energy concerns. South Carolina is very proud of its proactive energy programs, which provide both a necessary service to our citizens and protection for the environment. Through energy conservation programs, the State is pursuing greater efficiency and reduced pollutants in environmental control systems in schools, colleges, universities and government agencies

The federal government has been a principal partner in our progress. However, with the phasing out of federal programs, such as the Institutional Conservation Program (ICP) and the State Energy Conservation Program (SECP), and the pending implementation of the State Energy Plan (SEP), there is some anxiety regarding funding levels. Adequate funding of the SEP is very important to maintain the positive momentum in the critical areas of energy conservation and the environment.

Related to energy issues, I encourage continued Congressional support of our U.S. Department of Energy Savannah River Site (SRS), near Aiken, South Carolina. For the past 50 years, SRS has been at the forefront of our nation's defense. Despite federal down-sizing, this defense nuclear production facility covers some 300 square miles and remains a viable and important national asset.

Further, the people of South Carolina, especially those living in the Central Savannah River area, continue to be supportive of the facility, even as we recognize potential environmental risks.

The end of the Cold War era has reduced the need for nuclear material, but it has not negated the need for the facility or the need to address waste issues.

I am concerned that DOE has significantly cut the National Defense Environmental Management budget in FY1997. Unless Congress restores funding for this activity, SRS will have to eliminate more than 1,100 jobs in 1996 alone. These cuts will have a severe impact on efforts to accelerate high level waste treatment, to stabilize nuclear material and to restore and decontaminate the environment.

We would need approximately $115 million to get back up to speed on our ongoing clean up programs at SRS.

In addition, Undersecretary-designate Tom Grumbly has testified before the Senate Armed Services Committee that the long-term dollar savings from accelerating these programs would be enormous.

By restoring the FY1997 DOE Defense Environmental Management Program to the FY1996 level, Congress could avoid laying off trained personnel and put them to work accelerating the clean up of some of our nation's most challenging nuclear waste problems.

South Carolina and the nation possess the tools and skilled personnel to clean up the legacy of the Cold War. Congress must provide the resources to help us accomplish this task.

In summary, South Carolina occupies a unique position in our national interest with its key military installations, coastal geography, interstate trade routes, and international commerce. We are a willing and responsible partner with the federal government, but we depend upon co-sponsorship for critical programs as they relate to energy and water.

To this end, I urge your support in funding requested projects.

LETTER FROM JAMES A. TIMMERMAN, JR., PH.D., SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES, COLUMBIA, SC

March 29, 1996

The Honorable Pete Domenici, Chairman
Subcommittee on Water & Energy Development
131 Senate Dirksen Office Building
Washington, DC 20510

Dear Mr. Chairman:

We appreciate the opportunity for the State of South Carolina to appear before your Subcommittee and to provide this as well as other testimony. While we recognize that the Budget will be balanced and laud this action, we are concerned with some of the priorities for the remaining funds.

Noxious aquatic weeds present a vexing problem for the Nation and for many states, from Florida to California, including South Carolina. This program was funded at $11.7 million in FY 94 and FY 95; FY 96 saw Congress appropriate $4 million where there was none in the President's budget. This year (FY 97) the President recommended $2.5 million. The concern is that the budget amount is too small and that the Corps of Engineers has historically allocated too large a portion to research and not enough to control of these exotic species. With the loss of the federal funds we anticipate immediate impacts to the economic and ecological integrity of our public waters and a long-term increased threat to many still uninfested waterways. We ask that you consider increasing the funding of the Corps' Aquatic Plant Control Program for FY 97 and earmarking a majority of the funds for cost-share with the states.

Assisting anadromous fish on the West coast has been endorsed by the President to the extent of $107 million in FY 97. This same issue is pertinent to rivers on the Atlantic Coast and in South Carolina. While efforts here improved the upstream migration of these species, almost nothing has been done to ensure the out migration of important juvenile fish. Where Corps facilities currently are affecting fisheries, including in and out migration, we ask that remedial actions be implemented.

Environmental restoration projects currently must be implemented by modification of Corps projects (See Section 1135). We believe that environmental restoration projects that are supported by resource agencies and have a cost sharing partner could and should stand alone. We ask that you and your committee consider such an amendment to Section 1135.

Beach erosion continues to be a major problem. The State of South Carolina provides funding to assist in some beach nourishment problems, but continued assistance is needed from the Corps. Much of the nearshore zone in South Carolina has not been adequately mapped in order to identify suitable sand resources and critical habitats that should be avoided in future renourishment efforts. A General Investigative Study to characterize and map bottom resources within five miles of erosional beaches in the state would provide information that would be extremely useful to the Corps, the State, and local government entities in maintaining these beaches, and it would provide the information necessary to protect nearshore biological resources and fisheries. This project would require authorization and funding. A reconnaissance study to identify the best approach for obtaining the data needed is warranted. Estimated funding required to initiate this effort in FY 97 is $400,000.

The Charleston Harbor estuary has received considerable attention in recent years due to its importance as one of the major ports in the nation. The system has been substantially modified in recent years as a result of the USACOE Rediversion Project, and it will be altered further with deepening of the Harbor's channels. Although a number of studies have been completed in the Charleston estuary, many questions remain regarding the effects of changing water quality and sediment quality on estuarine resources inhabiting the estuary. Furthermore, several of the studies which have been completed in the harbor system have identified elevated contaminant levels that could be harmful to marine life. A general investigation to map the distribution and bioeffects of sediment contaminants within and near maintained channels of the estuary would be extremely useful in developing appropriate management strategies for maintaining the harbor as a port and protecting biological resources. General studies to better evaluate the assimilative capacity of the harbor and the effects of channel modifications on general water quality are also warranted. Funding levels required for each component could be identified through a reconnaissance study.

Planned efforts to deepen Charleston Harbor will result in the disposal of substantial volumes of inner harbor material into the Charleston Ocean Dredged Material Disposal Site (ODMDS). The SCDNR has been working in cooperation with the USACOE, USEPA and NOAA to obtain adequate baseline information in and around the Charleston ODMDS for use in future monitoring to ensure that disposal of materials from the deepening project do not have an adverse impact on surrounding habitats. Funding for adequate physical and biological monitoring of disposal activities related to the Charleston Harbor Deepening Project is critically needed if this project is initiated in FY 97. Initial startup funding for the monitoring effort is estimated at $200,000.

There is interest in investigating existing and future dredged disposal areas to include concepts of compatible use by wildlife management and environmental restoration. Funding for this new start for the Inland Water Way is requested on the order of $350,000 to $400,000.

In closing, we would strongly urge the Corps to maintain their Civil Works Planning Branch at the Charleston District, or expand this branch if consolidation of District offices becomes necessary in the future.

The Charleston District has been very proactive in working with the SCDNR to ensure that their civil works projects in the state are properly monitored or mitigated. Examples of recent cooperative USACOE-SCDNR projects in the coastal zone include biological and physical monitoring of other states'ocean disposal areas, biological and physical monitoring of the Folly Beach and Myrtle Beach nourishment projects, and evaluation of loggerhead turtle populations in the Charleston Harbor entrance channel. The Corps is also providing some of the financial support needed to address issues related to the use of hydraulic shellfish harvesters. In general, the Charleston District's Planning Branch has been much more progressive than either the Savannah or Wilmington offices in addressing issues in the coastal zone, and we believe that it would be beneficial to expand that Charleston Office if consolidation of branch offices is necessary. We would have serious concerns if this branch were reduced or consolidated into another branch office since it is critical to maintain a close working relationship with local representatives.

We also continue to enjoy very productive long-term relationships with the construction Operations Division, Regulatory Functions Branch and the Project Manager for Navigation. The close liaison with the individuals involved in these programs has only been maintained because of their accessability through the Charleston District office. Additionally, the variety of professional expertise available in these offices has facilitated on-site and office meetings that have resulted in efficient resolution of many complex problems related to the wetlands regulatory process, as well as issues dealing with the various other projects managed by the Charleston District.

LETTER FROM W. DON WELCH, SOUTH CAROLINA STATE PORTS AUTHORITY, CHARLESTON, SC

March 25, 1996

The Honorable Pete Domenici
Chairman, Subcommittee on Water
and Energy Development
SD-131
Washington, DC 20510

Dear Chairman Domenici:

The South Carolina State Ports Authority owns and operates three ports in South Carolina: Charleston; Georgetown; and Port Royal. Charleston is, the largest and most nationally significant South Carolina port, second only to New York and New Jersey as the largest Eastern container port. However, all of South Carolina's port system contributes significantly to the economic well being of the State providing jobs for 78,000 citizens and a combined economic impact of $11 billion dollars per year. It is because of Charleston's strategic port impact on both South Carolina and the United States that I am contributing testimony to the Energy and water Sub-Committee.

Over one-million container units move in and out of Charleston harbor every year and they move on 1,650 vessels, many of them twice as large as they were just twenty years ago. Ships 965 feet long and drawing 41-42 feet of water are commonplace today. While maintaining navigation channels is vital for today, deepening them for tomorrow is of equal importance in order to keep up with international vessel trends. In the next two to three years major steamship lines will receive from the shipbuilders 100 new container ships - over 1,040 feet in length - and carrying 5,000 to 6,000 container units each. Design drafts will be from 41-46 feet.

While these new state-of-the-art ships bring efficiency and economies of scale to the steamship lines their channel depth requirements bring major concerns to many U. S. Ports For example, Charleston has 40-foot channels, deepened only recently from 35 feet under the authority of the 1986 Water Resources Act. Now, in an effort to keep pace with ship-building technology, Charleston has co-funded with the U. S. Army Corps of Engineers a feasibility study for deepening its channels to 45 feet. The studies have clearly demonstrated that deepening is both commercially necessary and economically justified. The next step is authorization in the 1996 Water Resources Bill.

In preparation for that major step, the South Carolina State Ports Authority has signed a letter of intent and financial capability. This means that there will be an approximate 35% non-federal participation in the estimated $116 million cost to deepen Charleston's channels to 45 feet.

In 1986, the Federal share of Charleston harbor deepening to 40 feet was approximately $33 million. In exchange for these federal monies spent on harbor deepening, the U.S. has received since 1987, over $3 billion in Custom's receipts at the Charleston district (That is just through 1994; 1995 figures are not yet available). The goods moving through Charleston between 1987 and 1994 were valued at $107 billion. Since Charleston is an export port with the percentage of exports during those years hovering at 60 -plus percent, one can readily see how valuable Charleston's navigation channels are to the Southeast region and to the nation. Further, with the Port of Charleston's recent and current growth in the double-digits annually, one can also see how much more valuable those channels will become in the years ahead to the businesses located in twenty-six states that currently use the Port of Charleston to further their international business objectives.

Once channels are dredged, they must be maintained. The material that accumulates in the channels must be removed periodically and placed in approved disposal areas. At the present time the national policy is that the non-federal sponsor, (in South Carolina's case the State Ports Authority), must furnish and pay to maintain the disposal areas used for deposit of material dredged from federal channels. This is no small problem or responsibility, in large part due to the federally-imposed environmental constraints attached thereto. It is not only extremely difficult to locate suitable sites, but is becoming more and more expensive because of federal environmental mandates. Because this is true these costs should be shared by the federal government on the same basis as channel construction costs. After all, disposal is consequential to dredging; one can't be done without the other. The South Carolina Port system does not have taxing authority, nor does it receive State appropriations. Accordingly, meeting these ever-increasing costs, which are about $2 million a year at present, is a serious financial problem for the Authority, taking away from its primary mission to provide high quality marine terminal services. As this year's Water Resources Bill is being prepared, it is urgent that maintenance cost-sharing be included in the legislation, for the good of all U. S. Ports. It is patently unfair to download this entire burden to port communities, considering the increasing difficulty and cost of complying with federally-mandated environmental regulations.

Ninety-five percent of all United States international trade moves by ship. Those ships require adequate channels with proper maintenance to access U. S. Ports. Please understand the overwhelming importance of timely appropriations to the present and future well-being of the national economy.

I extend my appreciation to your Committee for your time and attention.

LETTER FROM JAY A. FLANAGAN, DIRECTOR, STATE BUDGET AND CONTROL BOARD, COLUMBIA, SC

March 22, 1996

The Honorable Pete Domenici, Chairman
Subcommittee on Water and Energy Development
SD-131 Washington, DC 20510

Dear Senator Domenici:

I urge you to continue funding the Department of Energy's support for the State Grant Program. The small amounts of money going into this program leverage large cost savings for schools, state agencies, businesses and individual consumers, as well as increase America's economic competitiveness and improve the environment. As examples of effective use of these funds, South Carolina in the last three years has:

* converted its state fleet vehicles to more fuel efficient models;
* increased use of alternatively fueled vehicles;
* installed energy efficient lighting resulting in 20% - 30% returns on investment;
* helped schools reduce energy costs by millions of dollars;
* diverted thousands of tons of municipal solid waste from landfills through recycling;
* increased energy efficiency of manufactured homes, saving millions of dollars annually.

This is one government program that provides a return on investment. As federal and state budgets shrink, it is imperative that we continue to support cost effective solutions to our energy problems. We need to strengthen this effort, not diminish it.

DISTRICT: Charleston

APPROPRIATION: Construction, General

PROGRAM: Aquatic Plant Control

REQUESTED FUNDS: $1,600,000

SPONSOR: South Carolina Department of Natural Resources, Water Resources Division

DESCRIPTION: The Aquatic Plant Control Program provides for the control and progressive eradication of water hyacinth, alligatorweed, hydrilla, and other noxious aquatic plant growths from navigable waters, tributaries, streams, connecting channels, and other allied waters of the United States. This program is cost-shared at the rate of 50% Federal and 50% non-Federal. This program was identified for termination after Fiscal Year 1995; however, reduced funding was provided to the Corps of Engineers in Fiscal Year 1996, most of which was designated for research purposes as opposed to treatment purposes. Termination of this program will result in a rapid expansion of aquatic plants and the resultant restriction on the use of affected water areas within South Carolina. Although the State is increasing the level of their aquatic plant control spending each year in an attempt to gain control of the aquatic plant problem, the reduction or elimination of Federal participation will severely impact the State's capability to maintain navigable waters. This program must be funded at the requested level to continue with the essential treatment of state waters.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Atlantic Intracoastal Waterway

REQUESTED FUNDS: $400,000

SPONSOR: The South Carolina Office of Ocean and Coastal Resource Management is the potential sponsor.

DESCRIPTION: Problems to be addressed during this study will include the need for continued maintenance at the authorized depth; maintenance dredging needs; shoaling rates and disposal area needs; alternatives to reduce maintenance dredging costs; beneficial uses of dredged material; determine practical lift and height to which disposal areas can be constructed on marsh-like foundations; identify hazards to navigation; identify easement encroachments (docks, bulkheads, bridges, etc.) on the viability of the waterway; bank erosion and the control of such both in land cuts and the marshlands; fish and wildlife habitat; loss of wetlands and oyster beds; water quality; and restoration of wetlands altered by disposal operations. South Carolina is responsible for providing the disposal areas for the AIWW, and we believe it is time for an in-depth analysis to assist in decisions that must be made concerning disposal areas.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Charleston Estuary

REQUESTED FUNDS: $400,000

SPONSOR: The South Carolina Office of Ocean and Coastal Resource Management is the potential sponsor.

DESCRIPTION: The estuary covers portions of Charleston, Berkeley, and Dorchester Counties, and consists of over 50,000 acres of coastal marshes and associated flora and fauna. The major water bodies in the estuary are the tidal reaches of the Ashley, Cooper, Stono, and Wando Rivers, and the lower portions of Charleston Harbor. This basin-wide study will identify problems from current land uses and associated runoff, characterize important species and habitants, identify historic recent losses of important habitats and populations of important species, develop water resource management plans, and ecosystem restoration. The South Carolina Office of Ocean and Coastal Resource Management is nearing the completion of the comprehensive Charleston Harbor Project and this Corps of Engineers study is a logical follow-on to identify and move forward those projects that are consistent with State goals and needs.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Charleston Harbor Deepening and Widening

REQUESTED FUNDS: $300,000

SPONSOR: The South Carolina State Ports Authority

DESCRIPTION: Commerce in Charleston Harbor has increased from 6.8 million tons in 1982 to approximately 11.0 million tons in 1994, with the largest portion of the increase being in containerized cargo. The State Ports Authority has been operating at capacity, which has forced them to expand the Wando Welch terminal and investigate locations for new terminal locations. There has been an increase in the size of vessels using or desiring to use the terminal facilities in Charleston Harbor, and the percentage of these large vessels is expected to increase in the future. Many of these larger vessels are presently required to light load and/or make use of tidal advantages due to the existing navigational depths. With a deeper channel, these vessels will be able to operate more efficiently. The State Ports Authority has expressed a need for deepening the Charleston Harbor Project and construction of a turning basin for the new terminal facilities is recommended. Continued planning and engineering for this vital project is essential.

DISTRICT: Charleston

APPROPRIATION: Operations and Maintenance

PROJECT: Clouter Creek Disposal Area

REQUESTED FUNDS: $1,200,000

SPONSOR: The South Carolina State Ports Authority

DESCRIPTION: The Clouter Creek Disposal Area is a major dredged material disposal area under the administrative control of the Navy. It is proposed to transfer administrative control to the Department of the Army and re-dike the area at Federal expense. In the future, funds collected from users would be used to raise and maintain the dikes. The Navy's portion of the disposal area has received little attention in the past five years. Ditching, clearing, spillway replacement, and dike reconstruction must be accomplished prior to reuse. Restoration of these dikes is vital to the redevelopment and future use of the Charleston Naval Complex. The South Carolina State Ports Authority is responsible for diking disposal areas serving the Charleston Harbor Navigation Project; however, there is no immediate need for the Navy's area by the SPA or the Corps that would justify the expenditures required to restore the dikes.

DISTRICT: Charleston

APPROPRIATION: Construction, General

PROGRAM: Continuing Authorities Program

REQUESTED FUNDS: Fund at Historic Levels

DESCRIPTION: The Secretary of the Army, acting through the Chief of Engineers, is authorized to plan, design, and construct certain types of water resources improvements without specific Congressional Authorization. This program is cost-shared between the Federal Government and the non-Federal sponsor. Cost shared amounts differ depending on the type of project being undertaken. These authorities are called the Continuing Authorities Program. They consist of:

Section 14, Flood Control Act of 1946 (PL 79-526), as amended, for emergency streambank and shoreline erosion protection for public facilities and services.

Section 103, River and Harbor Act of 1962 (PL 87-874), as amended, for hurricane and storm damage reduction.

Section 107, River and Harbor Act of 1960 (PL 86-645), as amended, for navigation.

Section 111, River and Harbor Act of 1968 (PL 90-483), as amended, for mitigation of shoreline erosion damage caused by navigation projects.

Section 205, Flood Control Act of 1948 (PL 80-858), as amended, for flood control.

Section 208, Flood Control Act of 1954 (PL 83-780), as amended, for snagging and clearing for flood control.

Local governments in South Carolina support this program and have continued to request assistance from the Corps of Engineers. There are currently seven study requests waiting for funds:

Cow Castle Creek - Section 205
Johnson's Swamp/Andrews - Section 205
Castle Pinckney - Section 103
Goose Creek - Section 205
Causar Branch - Section 205
Black River - Section 205
Swamp Lake - Section 205

Due to a funding shortfall at the national level, the Corps has been forced to delay three projects, as well as two ongoing Section 14 studies and a Section 103 project. The highly visible Arcadian Shores Section 103 study has been delayed for approximately four months and may result in a loss of approximately $2,000,000 to the sponsor if not funded immediately.

During Fiscal Year 1995, the Charleston District completed construction of the Santee Dam Section 14 Project, and the Pinopolis Dam Section 14 Project. During Fiscal Year 1996, construction was completed on the Battery Pringle Section 103 Project. These projects are important to the continued economic development and well-being of the citizens of South Carolina. We support a vigorous program that would allow the Chief of Engineers to respond to every request received.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Cooper River Navigation

REQUESTED FUNDS: $400,000

SPONSOR: The South Carolina State Ports Authority is the potential sponsor.

DESCRIPTION: This study would evaluate the feasibility of extending the navigational channel in Charleston Harbor to provide for deep-draft navigation to industrial facilities located above the upper limits of the Federally-maintained channel on the Cooper River. Potential industrial users include Mobay Chemical, DuPont Chemical, and Amoco Chemical. NUCOR Steel is also located in this reach of the Cooper River. Upon completion of this new plant in the spring of 1996, 400,000 tons of iron carbide is expected to be received. The current depth and configuration of this portion of the Cooper River limits the ability of these facilities to fully utilize the existing Federally-maintained channel. The continued economic growth of this region of the State is linked to the Cooper River and our ability to provide for commercial navigation.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Edisto River

REQUESTED FUNDS: $400,000

SPONSOR: The State of South Carolina is the potential sponsor.

DESCRIPTION: The Edisto River Watershed, with a tidal reach of 38 miles, extends northward from the coast at St. Helena Sound and lies entirely within the State of South Carolina between the Savannah River and the Santee River basins. The basin-wide ecosystem study will consider water resource needs including flood control, water supply, navigation, recreation, and environmental enhancement/restoration. The State of South Carolina has just conducted a comprehensive analysis of the watershed to identify important features and to build consensus for management strategies. Many hours have been spent over the last two years obtaining citizen and agency input. The Corps' study is the logical follow-on to identify those strategies that lend themselves to Federal/State implementation.

DISTRICT: Charleston

APPROPRIATION: General Investigations

STUDY: Georgetown Harbor

REQUESTED FUNDS: $250,000

SPONSOR: The South Carolina State Ports Authority is the potential sponsor.

DESCRIPTION: This is a continuing study. Georgetown is located 60 miles northeast of Charleston. The existing project provides for a channel 27 feet deep, from the Atlantic Ocean to a turning basin at Georgetown. Since 1984, $8.5 million has been spent on infrastructure improvements by the South Carolina State Ports Authority and private interests. Commerce has increased from 249,000 tons in 1984 to over 1.3 million tons in 1995. The majority of the vessels currently using the harbor cannot navigate the channel fully loaded. This study will determine if there is economic justification for a deeper channel or other modifications that will improve navigation. It will investigate the feasibility of modifying the existing project to include a maintenance plan which will provide authorized 27' depth year round and a disposal plan which is economically and environmentally acceptable. Open water disposal in Winyah Bay has been controversial, but thus far has been found to be the only viable alternative. This study will address the disposal problems in more detail and seek other, more environmentally acceptable disposal options.

DISTRICT: Charleston

APPROPRIATION: Construction, General

PROJECT: Myrtle Beach Storm Damage Reduction

REQUESTED FUNDS: $13,000,000

SPONSORS: The City of North Myrtle Beach, The City of Myrtle Beach, and Horry County

DESCRIPTION: The Myrtle Beach project is located along the northern coast of South Carolina and extends from Little River Inlet at the North Carolina border, in a southerly direction, to Murrells Inlet, for a total distance of approximately 37 miles. It includes the entire coast of Horry County and a portion of the coastal area of Georgetown County. The project consists of placement of 5.1 million cubic yards of sand for initial construction of 25.4 miles of protective beach, encompassing three separable reaches. Material will come from offshore borrow sites. Periodic nourishment is authorized for a 50-year period and will be required about every eight to ten years. The value of protected property for the 37-mile project reach is estimated to be in excess of $1.4 billion. The continuation of this project is essential for the State of South Carolina.

DISTRICT: Savannah

APPROPRIATION: General Investigations

STUDY: New Savannah Bluff Lock and Dam, GA & SC (Surveys)

REQUESTED FUNDS: $400,000

SPONSOR: South Carolina supports the study.

DESCRIPTION: The New Savannah Bluff Lock and Dam (NSBL&D) is located 13 miles downstream from Augusta, Georgia, on the Savannah River in Aiken County, South Carolina, and Richmond County, Georgia. The NSBL&D is a concrete structure that consists of a lock chamber and gated spillway. The lock chamber is 56 feet wide and 360 feet long and has a maximum lift height of 15 feet. The dam spillway has three nonoverflow type vertical lift gates 62 feet wide by 15 feet wide by 12 feet high that are used for pool regulation. The structure was authorized in the Rivers and Harbors Act of 1930, and constructed in the late 1930's as a WPA project.

OHIO RIVER VALLEY INLAND WATERWAY IMPROVEMENT PROJECTS

PREPARED STATEMENT OF R. BARRY PALMER, EXECUTIVE DIRECTOR, ASSOCIATION FOR THE DEVELOPMENT OF INLAND NAVIGATION IN AMERICA'S OHIO VALLEY

Mr. Chairman and Members of the Subcommittee:

I am Barry Palmer, Executive Director of DINAMO, the Association for the Development of Inland Navigation in America's Ohio Valley. DINAMO is a multi-state, membership based association of business and industry, labor, and state government leaders from throughout the Ohio Valley, whose singular purpose is to expedite the modernization of the lock and dam infrastructure on the Ohio River Navigation System. Largely through the leadership of this subcommittee and the professional efforts of the US Army Corps of Engineers, we in the Ohio Valley are beginning to see the results of 15 years of continuously hard work in improving our river infrastructure. We know that you both, Mr. John Myers and Mr. Tom Bevill, have announced your retirement from public office at the end of this election cycle. We want to acknowledge and express our gratitude for the tremendous support given to us in the Ohio Valley throughout both of your distinguished careers in the House of Representatives.

We are here before this distinguished subcommittee today to request funding of lock and dam modernization objectives in the Ohio Valley in accordance with the full capability of the US Army Corps of Engineers. Since we do not yet have the President's Budget for FY 1997 or any clear delineation of the capability of the Corps to execute modernization objectives, we are relying on the information provided in the Project Management Plans or the Project Executive Summary Reports (which are public information) in determining the level of expenditures needed for each project. For FY 1997 DINAMO is requesting funding for each project as follows:

Recommendations for Fiscal Year 1997:

1. For the Robert C. Byrd Locks and Dam modification project, formerly the Gallipolis Locks and Dam on the Ohio River, OH/WV, about $15,000,000 for continued construction.

2. For the Winfield Lock Replacement on the Kanawha River, WV, $33,000,000, for continued construction. This amount reflects an estimate of monies identified in the Project Management Plan for construction of the new lock less those monies estimated for HTRW clean-up, which is now being funded by the previous owner of the property.

3. For the Olmsted Locks and Dam, replacing Locks and Dams 52 and 53 on the Lower Ohio River, IL/KY, $80,000,000, for continued construction. The lock contract was awarded recently for about $224 million and is scheduled to be completed in three years. Continued design and engineering of the remaining elements of the project will also be required.

4. For improvements to Monongahela River Locks and Dams 2,3 & 4, PA, $18,700,000, for continued construction, as identified in the Project Management Plan.

5. For the McAlpine Lock Project on the Ohio River, IN/KY, about $9,000,000 to continue construction.

6. For the Marmet Lock Replacement on the Kanawha River, WV, a total of $5,000,000, with about $1.6 million to complete Pre-Construction Engineering and Design (PED), with the balance to be spent in a construction account for real estate acquisition and related activities associated with the project.

7. For the Kentucky Lock Addition on the Tennessee River, KY, $3,000,000 to continue Pre-Construction Engineering and Design. During the previous five years the Administration provided no monies for this project. Within the last several months, however, the Assistant Secretary of the Army for Civil Works approved the Kentucky Lock Reevaluation Report. Approval of this report means that the project is now eligible for immediate budgetary consideration and authorization.

8. For the Ohio River Mainstem Study, including studies related to modifications of Uniontown, Newburgh, and Cannelton Locks and Dams, $9,000,000. This level of funding is needed to complete the feasibility studies leading to an authorization report enabling construction of additional capacity for the Uniontown, Newburgh, and Cannelton Locks and Dams, Ohio River, IN/KY. Also the Corps of Engineers needs to initiate studies to determine where additional improvements may be needed in future years along the Ohio River Navigation System.

You will note, Mr. Chairman, that **we are requesting $5,000,000, in construction funding for the Marmet Lock Replacement. Since the Marmet project is not currently authorized for construction, but is at the point in its development where the Corps of Engineers could initiate acquisition of real estate, it is important that the Committee provide a "limited authorization" and adequate funding to enable the Corps of Engineers to proceed with the next step prior to construction of the new lock.**

The existing Marmet Locks and Dam is located in a highly populated area, and the proposed Marmet Lock has significant social impacts. An estimated 129 acres of real estate would be acquired in West Belle, including 71 acres of vacant land. Included would be 234 residential and 10 commercial units. Although alternative lock plans which would reduce the impact on the nearby residential communities were studied by the Corps, all other alternatives either do not provide satisfactory navigation conditions or have a much higher cost. Hence, design of the new lock plan has focused on limiting real estate acquisitions to the minimum necessary for construction.

A community advisory committee, led by Congressman Bob Wise, has been keeping the community informed of developments in the Marmet study. It is our understanding that **there is a general consensus among the residents that the new lock is essential to the local industrial base and to insure jobs in the region**. Most affected residents plan to relocate within a few miles of their present location, and most of the businesses expressed a desire to reopen in the general area. **Many affected residents are concerned about further delays and are anxious for land acquisition to begin**. DINAMO is sympathetic and appreciative of the concern of affected residents and comes to the committee today to ask for help in expediting the necessary real estate plans related to the project.

In addition to the concern of affected residents regarding delays, the condition of the existing Marmet Locks necessitates speedy action. Real estate activities in conjunction with this project must take place over a four year time period, and the total costs for acquisition of real estate are estimated at $21.3 million. Also for each year when there is no real estate activity, the completion date for the project would slip one year. The project is included in S 640, the Senate's version of the Water Resources Development Act of 1996, which is currently on the Senate calendar. The House has scheduled hearings on its version of the water resources bill for this year, and we know the Administration supports construction authorization of the Marmet project

The Marmet Lock and Dam on the Kanawha River in West Virginia is currently part of the Kanawha River Navigation Study initiated by the Congress in 1977. DINAMO's members have worked closely with the Corps of Engineers throughout all phases of the planning, design and engineering of this project, as we have with other projects under investigation and construction in the region.

To improve present and future navigation conditions at Marmet Locks and Dam on the Kanawha River, DINAMO supports the recommendation of the Huntington District Engineer, approved by the Chief of Engineers, US Army Corps of Engineers, to construct a new 110' x

800' lock landward of the existing twin 56' x 110' locks. The plan includes continued operation of the existing lock chambers. The cost of this improvement is estimated at $229.6 million for the new lock and $10.7 million for rehabilitation of the existing dam. The recommended plan has a benefit-to-cost ratio of 2.85 to 1. The proposed improvement to Marmet is the National Economic Development (NED) plan, a mandate to promote economic growth while reducing the federal deficit. The NED plan must maximize net annual benefits while taking into consideration future traffic demand, the cost of building and maintaining improvement alternatives, and cost comparisons of alternative modes.

Construction of the new Robert C. Byrd Locks (dedicated in November 1992) and rehabilitation of the dam and construction of a new 110' x 800' lock (groundbreaking in Spring 1988) at Winfield Locks and Dam dictate construction of a new lock at Marmet Lock and Dam. The commonality of traffic that passes through Marmet , Winfield, and Robert C. Byrd is extraordinarily high. For example, about 99 percent of all commodities moving through Marmet (upbound and downbound) also moves through Winfield, and 55 percent of commodities moving through Marmet moves through Robert C. Byrd.

From 1982 to 1994 tonnage at Winfield increased by 9 million tons -- from 13 million to 22.3 million. Tonnage at Marmet during the same period increased 10 million tons -- from 7.2 million to 17.4 million. Total lock processing times for a normal tow at Winfield during this time increased from 4.2 hours to 10.7 hours. Delays at Marmet also increased over the same period from 2 hours total processing time in 1982 to 6.4 hours in 1994. Hence the congestion problems currently experienced at Winfield, which are also expected to increase with increased traffic demand, will only be shifted upstream to Marmet after the new lock at Winfield is completed.

The Marmet Lock is an important link in the economy of the Kanawha Valley. Traffic at Marmet is composed largely of coal produced in the upper Kanawha Basin and destined for electric generating facilities and coking plants throughout the middle and upper Ohio River Basin. Some traffic moves to points as distant as Houston, Texas, and St. Louis, Missouri. In 1994 coal accounted for approximately 93 percent of the total tonnage.

Marmet traffic is projected to grow at an annual rate of 3 percent through 2000 before slowing to 1.1 percent through 2050. Much of this growth is attributable to the Clean Air Act Amendments of 1990, which require coal-using electric generating plants either to install scrubbers, use advancer technologies to clean coal, or blend coals to reduce sulfur content. The coal fields of West Virginia are rich in low and medium-sulfur coal, and the Kanawha River is a crucial transportation artery to move this coal to market.

Three potential navigation problems have been investigated for Marmet: structural stability, limited lock capacity, and channel restrictions within the Marmet pool. Structural problems with the lock walls could result in lengthy unscheduled lock closures; limited lock capacity causes excessive traffic delays and increases the cost of transportation; and channel restrictions could increase the tow trip time or restrict tow sizes.

The existing Marmet Locks are 62 years old and in advanced stages of deterioration. The project has many signs of distress as evidenced by significant misalignment of the guide and guard walls, general deteriorated condition of the concrete, and unsatisfactory performance of the lock wall appurtenances. Traffic projections indicate that the number of lockages over the next fifty years will be approximately three times that experienced in the last fifty years. With the projected increase in traffic and age of the project, deterioration is expected to accelerate. However, simply rehabilitating the old locks does not solve the real problem -- limited capacity.

Limited capacity at the existing facility results in excessive delays and increased transportation costs. The old 56' x 360' locks at Marmet will accommodate three standard barges (175' x 26' each) and a towboat. But the chambers hold only one jumbo barge (195' x 35' each) with a towboat. Jumbos are currently the largest component of the Kanawha River barge fleet and the use of jumbo barges requires five lockages. Jumbo barges are used on long-haul movements where the inefficiencies of using jumbos are offset by the efficiency of using them elsewhere on the navigation system. With the completion of the larger lock at Winfield, standard barges will continue to lose their economic advantage and the use of jumbo barges is expected to increase. This shift will also aggravate the delays at Marmet.

Physical features along the river such as bends, bridges, and narrow channels that could restrict two-way traffic were also studied as part of the Marmet Feasibility Report. However, it was concluded that channel improvements are not economically justified because of the infrequency of tows meeting in one-way zones.

Environmental impacts of the selected plan were considered two categories: 1) construction impacts at the lock site and approach areas and 2) river system impacts resulting from changes in tow traffic and tow configurations. The lock will have direct environmental impacts at the construction site on terrestrial habitat, wetland and river bed. However, on-site mitigation measures will essentially restore the site's natural resource values after construction is complete. River system impacts were analyzed using a new planning tool, the Navigational Predictive Analysis Technique (NAVPAT), which show an adverse effect to aquatic habitat. Proposed mitigation includes isolating nearshore areas with breakwaters along portions of the Marmet pool shoreline to enhance habitats for fish. This mitigation is expected to cost $3.5 million

Finally, Mr. Chairman, I would like to conclude by restating the importance of the investments made on our nation's waterways, investments in people, investments in infrastructure, investments in America. The inland waterways are both a model and a methodology for what works. It has been this nation's investment in inland navigation that has allowed the interior regions to compete with other regions on a more level playing field. For instance, the coal in the West Virginia mountains has always been there But without transportation this coal is valueless Transportation to market gives value to coal, ores, and raw materials The less that transport to market costs, the more value it adds -- an vice-versa.

Commerce, like water, flows along the lines of least resistance. Production and industry have gravitated to the areas and along the routes of lowest costs. The industrial and agricultural development that has occurred along the inland waterway system of interior America has benefited this Nation beyond measure.

On behalf of the Board of Directors and members of DINAMO, I wish to express to you Mr Chairman and you Mr. Bevill, our heartfelt best wishes to you both at the end of this current session of Congress. Thank you for your leadership, your energy, your cooperation, and your humanity

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PREPARED STATEMENT OF JOSEPH E. LEMA, VICE PRESIDENT, NATIONAL MINING ASSOCIATION'S MANUFACTURERS AND SERVICES DIVISION

SUMMARY

Mr. Chairman and members of the Subcommittee, my name is Joseph E. Lema. I am vice president of National Mining Association's Manufacturers and Services Division. NMA's member companies produce and process coal, metallic ores, and nonmetallic minerals. Our member companies further include mining machinery and equipment manufacturers, suppliers of mine-related materials, consumers of mine products, and firms engaged in providing professional services associated with minerals production and distribution. Reliable, timely, and efficient barge transportation services on our system of interconnected inland and intracoastal waterways developed to enable commercial navigation in mid-America with access to the Gulf of Mexico are key elements of our Nation's freight transportation network for the distribution of mine products. With that in mind, NMA urges this Subcommittee to approve Fiscal 1997 appropriations to start or continue construction at key lock and dam projects focusing on elimination of traffic capacity constraints and replacement of aged, deteriorated structures and operating equipment at critical locations on the inland waterways system, and completion of a feasibility study on a key waterways segment, specifically:

- project construction at McAlpine and Olmsted on the Ohio River; Locks and Dams 2, 3, and 4 on the Monongahela River; Winfield and Marmet on the Kanawha River; and Kentucky Lock Addition on the Tennessee River; and
- feasibility study of lock and dam projects on the Lower Ohio River to analyze collective requirements for construction of improvements in the stretch from the mouth of the River near Cairo, Illinois upstream to Louisville, Kentucky.

These projects represent sound investments in our Nation's freight infrastructure. Annual barge traffic of approximately 620 million tons today, with coal and other mine products accounting for 45 percent of total tonnage utilizing the waterways system, is expected to rise by about 10 percent by 2010. Coal traffic itself is forecast to grow 22 percent. That increase in demand for barge transportation services underscores the importance of funding priority improvement projects without delay.

A MODERN WATERWAYS SYSTEM IS A VITAL ASSET PROVIDING FOR EFFECTIVE DISTRIBUTION OF MINE PRODUCTS

The inland waterways system already accommodated 620 million tons of barge freight in 1994, a level which likely was exceeded in 1995 according to the U.S. Army Corps of Engineers. Mine products represent a major share of total waterways tonnage, with coal traffic accounting for about 30 percent of inland waterway traffic and metallic ores and nonmetallic minerals amounting to another 15 percent of total traffic. Thus 280 million tons of mine products, including 180 million tons of coal, are being moved annually on the waterways. That equates to about seven to ten million truckloads or 25 to 35 thousand trainloads of freight required to move the same tonnage had it not been carried by barge tows, thereby substantially affecting the movement of other surface passenger and freight traffic, increasing congestion, significantly increasing fuel consumption for transportation purposes, and adding more vehicle emissions due to mobile sources of pollutants to the atmosphere. Clearly, the record shows that a modern waterways system is a vital transportation asset to our Nation, one that contributes highly to raising fuel efficiency with regard to the movement of freight, and lowering the amount of emissions that otherwise would negatively impact clean air programs.

At 180 millions tons of coal moved annually on the waterways today, we have experienced an increase of nearly 40 percent since the mid-1970's. Under the mid-range forecast of the U.S. Army Corps of Engineers, waterways coal traffic is expected to increase to over 220 million tons annually by 2010, a growth of more than 22 percent. In addition, nonmetallic minerals such as sulphur, salt, and various aggregates generally employed for construction purposes are forecast to rise from 86 million to more than 100 million tons annually in the same period, 1994 to 2010. High current volumes of barge traffic and major increases expected over the next 15 years, coupled by the fact that many lock and dam structures are aged, deteriorated, and under-sized for modern barge tows, have led NMA and its predecessor, the former National Coal Association, to strongly support an orderly program of lock and dam construction projects funded through the leadership of this key Subcommittee during the past decade.

Your important legislative initiatives during the period 1986 to the present have accomplished much improvement at critical lock and dam projects already, and a number of yet-to-be-completed construction projects are now in progress beyond several which have been completed and are open for navigation. Included are projects on the Black Warrior, Mississippi, Monongahela, and Ohio Rivers which have removed severe bottlenecks. Others under construction on the Kanawha, Monongahela, and Ohio Rivers under existing authorizations are soon to be completed.

The Ohio River and connecting segments of the Kanawha, Monongahela, Green, Cumberland, and Tennessee Rivers form a navigation system connected to the Mississippi River which flows from the North Central states to the Gulf of Mexico establishing an enormous path for marine commerce in mid-America, linking with trains to the western states and with dry-bulk vessels at ports on the Gulf serving coastal states like Florida and overseas ports around the world. The efforts of this Subcommittee are succeeding in preserving the effectiveness of that mid-America system of valuable inland and intracoastal waterways. The waterways system today is highly used for commercial transportation, along with other purposes like water supply and recreational boating. Its navigation structures also aid those non-navigation objectives together with flood control purposes. Therefore, there are many beneficiaries of a healthy waterways system, both commercial and non-commercial in nature.

Our objective at this hearing on Fiscal 1997 appropriations is to urge this Subcommittee to continue leading the preservation of a sound inland and intracoastal waterways system, by now approving the funding of well justified lock and dam construction projects: two on the Ohio River in Illinois, Indiana, and Kentucky, two on the Kanawha River in West Virginia, one on the Tennessee River in Kentucky, and one comprised of three sites on the Monongahela River in Pennsylvania, and by encouraging the U.S. Army Corps of Engineers to expedite completion of a study of lockage capacity on what might be called the "super service segment"of mid-America's waterways system, specifically the Ohio River from its mouth at the Mississippi River upstream to Louisville, Kentucky.

THE AGED, UNDERSIZED LOCKS AT MARMET ON THE KANAWHA RIVER IN WEST VIRGINIA SHOULD BE REPLACED NOW IN STEP WITH THE CURRENT CONSTRUCTION DOWNSTREAM AT WINFIELD

The Kanawha River in West Virginia is an important route for coal traffic originating from nearby mines and carried by barge tows downstream from above the Marmet project through the Winfield project to the Ohio River from which it moves to many coal-fired utility plants in mid-America and, through the Ohio River's connection with the Mississippi River, to coal-fired utility plants in southern states and to overseas coal consumers accessible from the Gulf of Mexico.

Lockage delays on the Kanawha River are serious. The Winfield project just downstream from the Marmet project experiences barge tow delays that average 12 hours, and delays of 24 hours are not uncommon. Further, most of the coal carried by barge tows through the Winfield project originates from barge loading docks upstream above Winfield and must first pass through the Marmet pool and the obsolete Marmet locks and dam. At Winfield the presently authorized construction project is moving forward. The U.S. Army Corps of Engineers plans a mid-1997 opening date for the improved facility. However, the delay problems on the Kanawha River must be corrected not only by building the new 110-foot by 800-foot lock at Winfield, which is soon to be completed, but also by building a complementary new 110-foot by 800-foot lock at Marmet. Preconstruction engineering and design is now in progress for the Marmet project; therefore, it is not only timely to authorize project construction at Marmet, it also is both warranted and desirable to assure that the benefits of the Winfield project are not diminished by continuing under capacity performance at Marmet.

THE KENTUCKY LOCK ADDITION PROJECT ON THE TENNESSEE RIVER IS AN UNDERTAKING WHOSE TIME HAS COME TO ENABLE EFFECTIVE ACCESS BY BARGE TOWS IN THE TENNESSEE VALLEY

The existing Kentucky Lock and Dam on the Tennessee River in Kentucky near Paducah and just upstream from the mouth of the Tennessee River at its Ohio River junction is hampered seriously by having only a single 600-foot lock rather than a modern 1200-foot lock chamber which is the standard dimension on the lower Ohio River with which

Tennessee River barge traffic must connect. The inefficiencies brought about by inadequate lockage capacity should be overcome now by the addition of a 1200-foot lock chamber enabling effective access to the Tennessee Valley, including the states of Alabama, Tennessee, and Kentucky. This project is the gateway to the Tennessee River Valley at a juncture with the "super service segment" of the Ohio River upstream from the Ohio River's mouth at the Mississippi River.

Currently 20 million out of a total of approximately 50 million tons of freight carried by barge tows on the Tennessee River annually are coal traffic, with another 14 million tons comprised of other nonmetallic minerals. The Tennessee River Valley joins with the Ohio River Valley as sites for many coal-fired utility plants having the benefit of access to the coal fields of the east, the midwest, and the west by intermodal rail/barge and truck/barge transportation services. Further, the lower Ohio River and nearby middle Mississippi River segments of the waterways system, linked at Cairo, Illinois are locations for several modern river barge terminals well equipped for coal storage, blending, and intermodal transfer operations, making that area a major hub for coal transshipment and service to utility plants in the east, the midwest, the southeast, and the southwest, together with export terminals located at the Gulf of Mexico. As coal is the low cost fuel of choice for generating 56 percent of the Nation's electricity, that intermodal coal distribution capability involving the junctures of the middle Mississippi, lower Ohio, and lower Tennessee Rivers in the vicinity of the Kentucky Lock on the Tennessee River makes the Kentucky Lock Addition project particularly important.

THE "SUPER SERVICE SEGMENT" OF THE OHIO RIVER FROM ITS MOUTH AT THE MISSISSIPPI RIVER UPSTREAM TO LOUISVILLE, KENTUCKY REPRESENTS A WATERWAYS SUBSYSTEM WHICH NOW MUST BE ANALYZED TO EVALUATE ADDED PROJECT NEEDS

The lower Ohio River is a remarkable avenue for significant transportation services carrying high volumes of upbound and downbound traffic and characterized by having many modern bulk commodity terminals in place to expedite materials storage, handling, and transfer into and out of barges, trucks, and trains. In 1994 the Ohio River carried 237 million tons of freight, 134 million tons, or 57 percent, of which were coal tonnage. The upbound traffic was 111 million tons and the downbound traffic was 126 million tons. Those represent exceedingly high, two-way freight movements, normally handled by barge tows in which a towboat pushes 15 barges arrayed three across and five in line with the towboat. That configuration necessitates a lock chamber which is 110 feet wide and 1200 feet in length to accommodate the barge tow in a single maneuver through the lock, without a need to break the tow and move barges through the chamber incrementally causing significant delays and creating a potential for mishaps in the course of lashing and unlashing the barges and holding some of them at moorings while others are passed though the lock.

It is apparent, from a systems design viewpoint, and with the realization that two-way barge traffic of such a high magnitude already is being experienced on the lower Ohio River and will increase in the coming years, that the locks and dams on the lower Ohio River from its mouth at Cairo, Illinois upstream to Louisville, Kentucky must be critically examined to determine when, not if, certain structures should be expanded. That need is amplified when considering that a project that has only a single 110-foot by 1200-foot lock chamber, even though it may also have a smaller auxiliary chamber, will become seriously impaired in handling barge traffic of the type prevailing on the lower Ohio River when the main lock chamber is shut down for maintenance and repair operations which often take several days or weeks to perform. NMA urges the Subcommittee to furnish appropriations of $2,600,000 for completion of a capacity study of lockage improvement on the lower Ohio River "super service segment" of the waterways system.

FISCAL 1997 APPROPRIATIONS ARE URGED TO CONTINUE PROJECTS ON THE OHIO RIVER, THE MONONGAHELA RIVER, AND THE KANAWHA RIVER IN THE UPPER OHIO RIVER BASIN WHERE CONSTRUCTION IS IN PROGRESS TO REPLACE OBSOLETE LOCK AND DAM STRUCTURES

Mr. Chairman and members of the Subcommittee, I have made lengthier mention of the Marmet Locks and Dam and the Kentucky Lock Addition projects inasmuch as preconstruction engineering and design has been performed for those sites, and early start of construction is desirable with Fiscal 1997 funding. At four other projects construction starts have been initiated earlier. Some are in the process of land acquisition while others have on-site work in progress. Accordingly, NMA urges approval for continuation of project construction in Fiscal 1997 for:

- Olmsted on the Ohio River replacing Locks and Dams 52 and 53;
- McAlpine on the Ohio River at Louisville, Kentucky;
- Winfield on the Kanawha River upstream from the Ohio River; and
- Locks and Dams 2, 3, and 4 on the Monongahela River near Pittsburgh.

MISSOURI AND ARKANSAS RIVER BASIN WATER PROJECTS

LETTER FROM GURNIE GUNTER, PRESIDENT, MO-ARK, KANSAS CITY, MO

March 16, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
United States Senate, Room SD 131
Committee on Appropriations
Washington, D.C. 20510

Dear Senator Domenici,

The Missouri-Arkansas River Basin Association requests your support in the 1997 Federal Budget for the following Flood Control Projects

	Federal $ Millions
1. Blue River Channel Improvement(12 mile long) • Construction	14.00
2. Upper Blue River - Dodson area • Authorization of P. E. & D.	0.95
3. Turkey Creek Basin • Complete Feasibility Study	0.25
4. Blue River - Swope Park Industrial Area • Begin Feasibility Study	0.50
5. L385 - Riverside-Quindaro Bend District • Begin Construction	42.00
Total request for FY '97	$ 57.70

This concludes the summary of our request. The enclosed will give further insight into the basis for our request.

PREPARED STATEMENT OF GEORGE BLACKWOOD, MAYOR PRO TEM, KANSAS CITY, MO

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

I am George Blackwood, Mayor Pro Tem of Kansas City, Missouri. I am pleased to have the opportunity to appear before you today representing both the citizens of Kansas City, and the Missouri-Arkansas River Basins Association (MO-ARK) in support of flood control projects that are vital to metropolitan Kansas City.

The metropolitan Kansas City area is presently receiving federal funding for five very important flood control projects. These vital projects are the key to a continued revitalization of several of our flood-prone industrial and commercial centers. These projects are:

1. Blue River Channel Improvement (12 mile long) ---Construction
2. Upper Blue River-Dodson Area --- Authorization of P.E.&D.
3. Turkey Creek Basin --- Complete Feasibility Study
4. Blue River-Swope Park Industrial Area --- Begin Feasibility Study
5. L385-Riverside-Quindaro Bend District --- Begin Construction.

A review of the flooding that has occurred in the past, coupled with the obvious reduction of flood damage generated by the completion of the Brush Creek channel and the partial completion of the Blue River channel, encourages us to ask for your continued support of these vital projects.

Blue River Channel Improvement:

The twelve-mile long Blue River channel project has been underway for over thirteen years. Construction is underway on another vital segment of this project which runs through one of our most important industrial areas. The project will be about 45% complete when this contract is finished. Three additional construction contracts will be awarded on approximately two-year intervals with project completion scheduled in year 2002. To date, the City has spent in excess of $24 Million on its share of the project, and is prepared to provide its share of all future costs estimated to be another $9 Million. Federal funding of $14 Million will be required in FY '97 to ensure continued construction.

Upper Blue River-Dodson Area

The feasibility study for the Upper Blue River (Dodson) has been completed with a favorable cost/benefit ratio and forwarded to Washington for authorization of pre-construction, engineering and design. This project will provide flood protection for the Dodson industrial district. Kansas City is prepared to become the local sponsor and fund its share of the project upon approval. Federal funding of $950,000 will be required for preconstruction, engineering and design.

Turkey Creek Basin

The Turkey Creek basin feasibility study is underway in Kansas City, Missouri, and Kansas City, Kansas. This bi-state drainage basin undergoes frequent flooding from two separate sources. Due to the complex problems presented by this dual flood threat, the study will not be completed until late 1996. We would urge you to provide additional funding to complete this study and move it forward for authorization. A repeat of the flood event of July 1993 will lead to abandonment of the area and loss of a portion of the vital industrial and commercial base of the metropolitan area. Federal funding of $250,000 will be required and Kansas City is prepared to fund the local match.

Blue River-Swope Park Industrial District

The reconnaissance study of the Swope Park industrial area study was completed in February 1996 and recommends federal interest in feasibility investigation. This small commercial/industrial area adjacent to the Blue River just downstream of Dodson is a valuable part of our industrial base. We ask that you support continued funding and study of this area. Federal funding of $500,000 will be required to proceed with a feasibility study and Kansas City is prepared to become the local sponsor and fund the local match.

Riverside-Quindaro Levee

Riverside is a small river community of over 3000 people, lying across the Missouri River from Kansas City, Kansas, and adjacent to Kansas City, Missouri. It has been ravaged by severe floods over many years. This was recognized by the Flood Protection Act of 1944. One of the last levees to be built by that authorization, it awaits the sponsor's signature on the Local Cooperative Agreement (LCA). Such works were authorized by Congress upon the commitment by the sponsoring agency of 25% of the cost of the project. The estimated cost of this levee is as much as $56.0 Million, the sponsor's share would be $14.0 Million under the original formula.

The Corps of Engineers has now arbitrarily changed the sponsor's share to 48%, or $26,800,000, while most other sponsors have had to pay only 25%, for levee projects under this authorization. MO-ARK requests the federal government honor their original commitment of 25% sponsor cost share. This is not the time to change horses. Finish the authorized work first, then seek new financing strategies. We must protest this treatment of this community. We question the Corps' authority to do so and feel it violates the underlying premise of the Flood Protection Act of 1944.

The recent 1993 floods cost the federal government $20.0 Million. In addition, state and local government costs totaled $3.0 Million. We suggest there is more to lose by the federal government than by state and local government should another flood of the 1993 magnitude occur.

The Levee District and the City of Riverside have explored all options open to fund the project, and have reached the decision that it cannot happen under the 48% requested funding. Since inflation can only cause construction costs to increase as long as the project is not started, we urge the Congress to request the Corps of Engineers to start the project with an LCA of 25% requirement of the sponsor as most other levee projects have been accomplished.

In addition to these projects, there are two other items of great concern to Kansas City.

Levee and Floodwall Level of Protection

During the great flood of 1993, we observed flood elevations well into the design freeboard on levees and floodwalls on both the Kansas and Missouri Rivers that were built to provide protection from a 500-year flood. Kansas City is concerned that this level of protection no longer exists due to urbanization of upstream areas. Therefore, we request that funding be provided to investigate the current level of protection provided by the existing flood control system in the Kansas City metropolitan area.

Annual Operating Plan

The Army Corps of Engineers has adopted its annual Operating Plan for the Missouri River. It approaches the **"Preferred Alternative"** that was rejected by the public and consequently by the Congress last year. The Corps was supposed to restudy and develop a new EIS for the Water Master Control Manual over the next two years. Instead the Corps has administratively implemented most of the dreaded features of the P.A. in adopting the Annual Operating Plan. This plan is a reallocation of water, outside of the Corps authority, without compliance with NEPA.

It includes early spring releases, lower summer releases, a higher level of storage; all of which will result in reduced navigation season. The plan does not represent the best interests of Midwestern Economy. **MO-ARK is opposed to such unilateral action by the Corps.** The impact can be devastating to the farmers in the States below the Garrison Dam. It has no proven quantified benefit to others.

In closing, Kansas City and MO-ARK appreciate your past assistance on these projects and urges your continued support by providing full funding as requested.

PREPARED STATEMENT OF WALLACE GIERINGER, CHAIRMAN, ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of this distinguished Committee, my name is Wallace Gieringer. I am Chairman of the Arkansas River Basin Interstate Committee, members of which are appointed by the governors of the great states of Arkansas, Colorado, Kansas, Missouri and Oklahoma. As Chairman, I am the speaker for the Committee and respectfully request that the copies of each state's individual statement be made a part of the record, along with this testimony.

We collectively have the responsibility to coordinate water resource matters among the states we serve and to speak for the Arkansas River Basin in appearances before committees of Congress and regulatory agencies. Today members of the Interstate Committee and others from our states are present in support of our request.

Mr. Chairman, the members of the Interstate Committee have agreed to focus on one subject vital to the five-state area and beyond - the McClellan-Kerr Arkansas River Navigation System and Montgomery Point Lock and Dam.

You might ask, how has the Navigation System faired? The Institute for Water Resources in 1983 evaluated the McClellan-Kerr and asked that and other questions. They were:

Did the project work?	YES
Do benefits exceed costs?	YES
Is it the best thing since sliced bread?	PERHAPS
Did the rest of the United States lose while the river corridor gained?	NO
What about the environment?	IMPROVED

The Institute reported: "The McClellan-Kerr Project affects all regions of the nation due to trade and production interrelationships. Almost as many jobs are created in areas outside the river corridor (counties), in Arkansas and Oklahoma and in the 48 remaining mainland States, as in the corridor." Truly this investment is of national importance with benefits flowing throughout the nation.

Today, the McClellan-Kerr Arkansas River Navigation System continues to be a success story. The $1.4 billion federal infrastructure investment authorized by Congress has triggered an additional $3.5 billion in public and private investments. Some 53,000 jobs have been created. Trading partners have been developed in forty-three countries on six continents. 1995 was another record year for tonnage, with over 11 million tons of commodities barged.

That's the good news. And our five states and the nation can be justifiably proud of this navigation system and forever grateful to this important committee and the Congress for making it a reality.

The bad news is that the viability of the entire Arkansas River Navigation System, the investments, the jobs and the international trade are at risk. They are threatened and will continue to be threatened until Montgomery Point Lock and Dam is constructed ½ mile from the confluence of the entrance channel and the Mississippi River.

Let me explain.

- The water level of the Mississippi River controls the level of the entrance channel. In recent years the surface of the Mississippi has dropped resulting in navigation restrictions on and occasional closing of the entrance channel. The Corps of Engineers has already found it necessary to dredge to the depth of the concrete sill of Norrell Lock and Dam - the first dam upstream - just to maintain a 9' entrance channel (exhibit 1).

- This dropping of the water level of the Mississippi is projected by the Corps of Engineers to continue. With projected water stages, the navigable depth of the entrance channel will become less and less. The carrying capacity for barges going to or from the system will be drastically reduced. By 2030, not even empty tows will be able to enter or leave the navigation system. They will be resting on the bottom with no water!

The entire Arkansas River Navigation System remains at risk until Montgomery Point is completed. Meanwhile, some $5 billion in federal and private investments, thousands of jobs and growing exports are endangered. The needed lock and dam was in the original project. Because of Congressional insistence, the construction authority remains open.

We are thankful the Congress, in Public Law 102-580 directed that "The Secretary shall proceed expeditiously with design, land acquisition, and construction of the Montgomery Point Lock and Dam on the White River, Arkansas, authorized as part of the McClellan-Kerr Waterway by Section 1 of the River and Harbor Act of July 24, 1946."

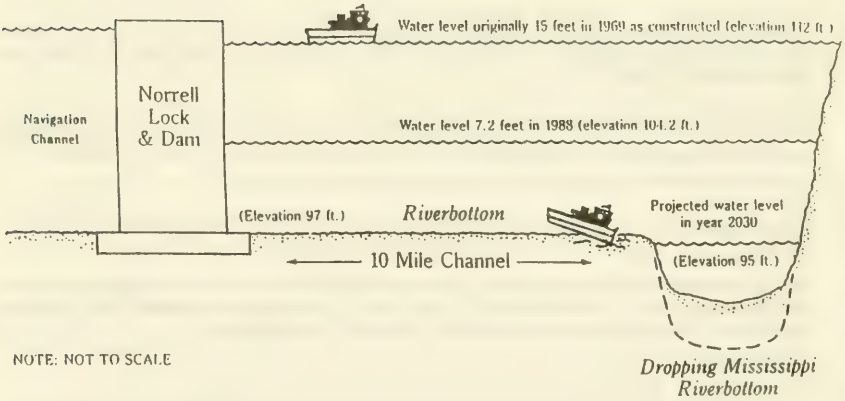
Mr Chairman, we are also very grateful that you, your associates, the Congress and the Administration have recognized the urgency of constructing Montgomery Point Appropriations of $18.6 million have been made to date for engineering, site acquisition and construction of this $163 million project (1993 dollars) scheduled for completion in 2003 Yet, time remains of essence. Additional congressional action is needed this year.

We respectfully request and urge the Congress to appropriate $16 million for use in FY '97 to continue construction for this urgently needed facility. This rounded amount is from the Corps of Engineers approved schedule of construction funding for FY '97 (at 1993 prices). This funding will insure that the urgently needed facility is in operation as soon as possible at the lowest possible cost.

Mr Chairman, we also respectfully request that you and members of your staff review and respond in a positive way to the attached individual statements from each of our states. These set forth specific requests pertaining to those states.

We sincerely appreciate your consideration and assistance. Thank you very much for the foresight, wisdom and resourcefulness you and your colleagues demonstrate each and every year in providing solutions to our nation's water resource problems.

Arkansas River Navigation System
Entrance Channel
PROFILE


Water level originally 15 feet in 1969 as constructed (elevation 112 ft.)
Navigation Channel
Norrell Lock & Dam
Water level 7.2 feet in 1988 (elevation 104.2 ft.)
(Elevation 97 ft.)
Riverbottom
Projected water level in year 2030
10 Mile Channel
(Elevation 95 ft.)
NOTE: NOT TO SCALE
Dropping Mississippi Riverbottom

Mr Chairman and members of the Committee, my name is Wallace Gieringer I am the recently retired Executive Director of the Pine Bluff-Jefferson County Port Authority and serve as Arkansas Chairman for the Interstate Committee Other committee members representing Arkansas are Messrs Wayne Bennett, soybean and rice farmer from Lonoke, Colonel Charles D Maynard, U S Army, retired, from Little Rock, Barry McKuin, Executive Vice President for Winrock Farms, Inc., at Morrilton; and N. M. "Buck" Shell, Transportation Specialist from Fort Smith.

The McClellan-Kerr Arkansas River Navigation System is quite a success story The $1.4 billion federal infrastructure investment authorized by the Congress has triggered an additional $3 5 billion in public and private investments Some 53,000 jobs have been created Trading partners have been developed in forty-three countries on six continents

Today the future of this wonderful navigation system is threatened. Let me explain

- The water level of the Mississippi River controls the level of the entrance channel. In recent years the surface of the Mississippi River has dropped resulting in navigation restrictions on and occasional closing of the entrance channel

- The low water level of the Mississippi River is projected by the Corps of Engineers to continue to decline Consequently, the navigable depth of the entrance channel will continue to become less and less thereby drastically reducing the carrying capacity for barges going to or from the system. By 2030, not even empty tows will be able to enter or leave the navigation system. They will be resting on the bottom with no water

- The Montgomery Point Lock and Dam to be constructed ½ mile from the confluence will insure reliable navigation, protect the billions in federal and private investments, and preserve thousands of jobs related to the waterway

We are here, Mr Chairman, to thank you and the members of this most important committee for your past assistance. We are very grateful that you, your associates, the Congress and the Administration have recognized the urgency of constructing Montgomery Point Lock and Dam Appropriations of $18 6 million have been made to date for engineering, site acquisition and construction for this $163 million project (1993 dollars) scheduled for completion in 2003.

Mr. Chairman and Members of the Committee, we respectfully request and urge the Congress to appropriate $16 million for use in FY '97 to continue construction for this urgently needed facility. This rounded amount is from the Corps of Engineers approved schedule of construction funding for FY '97. This funding will insure that the urgently needed facility is in operation as soon as possible at the lowest possible cost.

Other projects in our region are vital to the environmental, social and economic well-being of the region and our nation. We recognize the importance of continued construction of needed features to the McClellan-Kerr Arkansas River Navigation System and strongly recommend that you favorably consider the following in your deliberations when budgetary information is available

Support continued funding for the construction, operation and maintenance of the McClellan-Kerr Arkansas River Navigation System.

Continue construction authority for the McClellan-Kerr Arkansas River Navigation Project until remaining problems identified by the Little Rock District Corps of Engineers have been satisfactorily resolved.

Fund construction activities for the Arkansas River Levees Project as authorized by Section 110 of the Water Resource Development Act of 1990. These levees have been previously studied in the cost shared Arkansas River Arkansas and Oklahoma Feasibility Study. Funding is needed for construction for the rehabilitation of the Plum Bayou and Tucker Creek Levees and for continuing engineering and design of the others identified in that study

Fund continued repair and rehabilitation of the power units at the Dardanelle Lock and Dam which first went into operation in 1965. After this work is completed, power output will be increased by 13%.

Direct the Corps of Engineers to complete the Morgan Point Environmental Restoration Project and allow the local sponsor to receive credit for in-kind services.

Provide funding and direct the Corps of Engineers to complete the installation of tow haulage equipment at Norrell Dam and Dam 2 and start installation on the locks and dams between Little Rock and Tulsa. This efficiency feature will reduce lockage time by as much as 50% while permitting tonnage to double in each tow with only a minor increase in operating cost

We also urge the Congress to encourage the Military Traffic Management Command to continue to identify opportunities to accelerate use of the nation's navigable waterways to move military cargoes thereby helping contain the nation's defense costs

In conclusion, Mr Chairman, **the entire Arkansas River Navigation System remains at risk, and its long-term viability is threatened. The system will remain at risk until Montgomery Point Lock and Dam is constructed, which is scheduled for completion in 2003. Some $5 billion in federal and private investments and thousands of jobs and growing exports are endangered. The proposed lock and dam was in the original project. Thanks to Congressional insistence, the construction authority remains open.**

Please help prevent a crisis for the Arkansas River Navigation System and the multi-state region it serves by appropriating $16 million for use in FY '97 for Montgomery Point Lock and Dam.

We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee We appreciate the opportunity to testify before your most important subcommittee and urge you to favorably consider our request for needed infrastructure investments in the natural and transportation resources of our nation.

PREPARED STATEMENT OF STEVE ARVESCHOUG ON BEHALF OF THE BOARD, SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT

Mr Chairman and Members of the Appropriations Subcommittee on Energy and Water Development, thank you for the opportunity to present these comments and requests The Southeastern Colorado Water Conservancy District has for many years offered testimony before the U S House of Representatives and the United States Senate concerning the issues of the Arkansas River Basin Interstate Committee and more specifically the needs and issues from the Arkansas River Basin in Colorado

Speaking on behalf of the Board of the nine-county Southeastern Colorado Water Conservancy District, and here today as a participant in the Arkansas River Basin Interstate Committee, I first want to say that we support the priority funding request of the Interstate Committee for the McClellan-Kerr Arkansas River Navigation System and Montgomery Point Lock and Dam

The completion of the Montgomery Point Lock and Dam project, as authorized by Congress, is vital to maintain the success of federal and private sector investments in the entire Arkansas River Navigation System. The project certainly has positive impacts for the five-states represented on the Interstate Committee Colorado for example exports over 259,000 tons of coal and paper scrap, and imports over 150,000 tons of commodities each year using the facilities of the McClellan-Kerr Arkansas River Navigation System Ports The benefits of this navigation project are also felt nationwide as a positive part of our country's international trade economy. Your consideration of this funding request is appreciated

Allow me to update the Subcommittee members on the needs and issues in Colorado's Arkansas River Basin.

U.S. Bureau of Reclamation--Fryingpan-Arkansas Project

The U S Congress has long supported Colorado's Fryingpan-Arkansas Project, first granting legislative authorization in 1962 As the major federally-sponsored project for water delivery on Colorado\s Arkansas River Basin, the Fry-Ark Project continues to be a good investment of public resources (please note the attached map)

Over the last ten years the Southeastern Colorado Water Conservancy District has allocated over 600,000 acre-feet of valuable trans-mountain water from the diversion and storage systems of the Fry-Ark Project to farms and cities in the arid Arkansas River Basin in Colorado Since 1970 the water users and tax payers in the District have paid over $49 million toward the operation and maintenance, and the construction repayment costs for the Fry-Ark Project It has been a valuable investment for the District's constituents. Thank you for your vision and commitment to the family farms and communities of Southeastern Colorado through you support of the Fryingpan-Arkansas Project

The U S Bureau of Reclamation will again request funding for the Multipurpose Operation and Maintenance and the Federal Project expenses for the Fryingpan-Arkansas Project, Mr. Chairman and Members, I would take this opportunity to encourage your continued support for this key water delivery and power generation project

U.S. Army Corps of Engineers

Arkansas River Channel Maintenance Study Project--

Following the May 15, 1995 United States Supreme Court's initial decision in the Kansas vs Colorado lawsuit, which addressed issues of compliance with the Kansas-Colorado Arkansas River Compact, Colorado Department of Natural Resource officials met with the U S Army Corps of Engineers to discuss concerns over the river channel below the Corps John Martin Reservoir River channel capacity below John Martin Reservoir is important for two reasons First, in order for Colorado to meet its obligations under the River Compact it must be able to allow for the flow of the unappropriated natural waters of the river to the state-line for use in Kansas Over time the river channel has tightened and now limits flows Secondly, high waters from the 1995 runoff caused damage to valuable farm land in Colorado and in Kansas With the river channel unmaintained, peak runoff flows in the years to come will again cause damage to agricultural lands

The Corps of Engineers has agreed to work with the Colorado Water Conservation Board on this issue and has identified limited financial resources in the Planning Assistance to States Program to begin the study process It may be necessary to approach Congress in the future as the study effort looks toward possible implementation of a channel maintenance program. I will keep this committee updated on this issue

Operations and Maintenance John Martin Reservoir and Trinidad Lake--

These two flood control projects are valued facilities in southeastern Colorado John Martin Reservoir is an important part of the annual Winter Water Storage Program which provides much needed irrigation water for farms, and the reservoir stores water for both Kansas and Colorado water users Lake Trinidad is becoming an important recreational facility for the entire region, in addition to meeting it's flood control requirements The Corps of Engineers will again request funding from Congress to maintain these federally-operated projects, and I encourage your support of these requests

Alamosa Levee Project--

This project is not in the Arkansas River Basin but certainly warrants comments in this forum today Alamosa, Colorado is in the Rio Grande River Basin and has a need to control flood waters from the Rio Grande River The Corps of Engineers has requested funding for this project over the last few years and has received Congressional authorization for the initial phases of the project The completion of this project will provide 100-year flood protection for the City of Alamosa I encourage your continued support of this vital flood control project

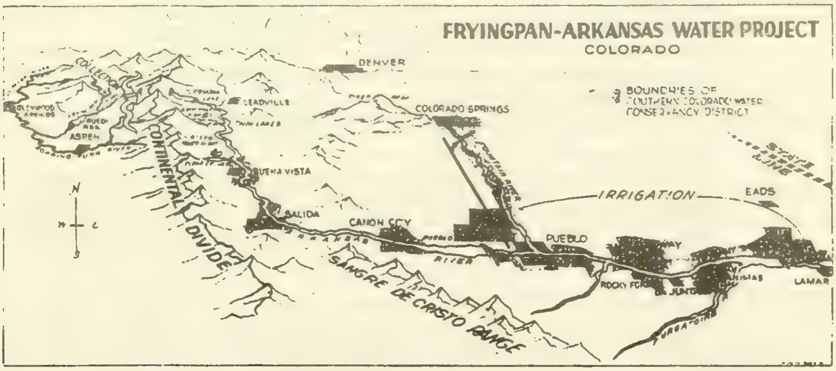
Protection of the States' Water Resources

Colorado is an active part of the Colorado River Endangered Fish Recovery Program, which is a program of the United States Fish and Wildlife Service and the Colorado River Compact Upper Basin States. Water users from the states work with the USFWS, under the leadership of state-level agencies, to set the objectives for the program It is at times a strained relationship, but so far it appears to work by allowing for the proper balance between water use and the protection of the natural environment. The major reason it has experienced success is because, in the case of Colorado, the state Water Conservation Board administers any in stream flow water rights, as prescribed by state law, as may be required for the operation of the Recovery Program This is a working example of the need for states to continue their leadership role in water resources management versus federal-level control

The U S House of Representatives has been very sensitive to the states' need to control and administer the waters of their individual state Each state has unique needs and demands on their water resources and provides a legal and administrative foundation for the protection and delivery of the waters of their state The Congress has recognized the importance of maintaining the states' primacy in water resources administration The continuation of that approach is critically important to Colorado and the other Western States as Congress completes work on the Endangered Species Act reauthorization, the Farm Bill and the many other policy matters which impact water users

Conclusion--

Mr Chairman and Members, your time and interest in these matters is greatly appreciated The constituents represented by the Arkansas River Basin Interstate Committee, and in particular the Southeastern Colorado Water Conservancy District, feel that they have established a successful partnership with Congress and the many Federal agencies who work with us in providing the water from the Fryingpan-Arkansas Project, John Martin Reservoir and Lake Trinidad, as well as the services of the McClellan-Kerr Arkansas River Navigation System and Montgomery Point Lock and Dam We look forward to a continuation of that partnership as you address the issues I've discussed today.



FRYINGPAN-ARKANSAS PROJECT RESERVOIRS

	Acre-Feet Capacity		Height Dam (Feet)		Surfaces Acres		Shoreline (Miles)
	Pre-Project	Actual	Pre-Project	Actual	Pre-Project	Actual	Actual
* Ruedi	—	102,369	—	285	—	997	12
* Turquoise	17,416	129,432	48	135	818	1,788	11
****Mt. Elbert Forbay	—	9,826	—	92	—	279	3
****Twin Lakes	117,550	166,179	41	60	2,446	3,137	14
*** Pueblo	—	357,000	—	191	—	5,680	60
TOTALS	134,966	764,906			3,263	11,881	100

COLLECTION SYSTEMS

	Conduits (mi)	Tunnels (mi)	Capacity
Southside	1.0	(3) 13.5	
Northside	3.0	(6) 8.0	
**Boustead Tunnel		5.4	10.5 cfs 945 cfs

*Completed in 1968
**Completed in 1971
***Completed in 1975
****Completed in 1984

TRANSPORTATION SYSTEM

	Length (mi)	Capacity
Mt. Elbert Cdt.	13.1	500 cfs
Otero Canal	[illegible]	725 cfs
Ark. River	300	varied

POWER PLANTS

	Penstock			Generating
	Length	Diameter	Capacity	Capacity
Mt. Elbert**	[illegible]	180"	3,590 cfs	200 mw
Otero	950	84"	575 cfs	11 mw

**Pumped Storage

PREPARED STATEMENT OF GERALD H. HOLMAN ON THE WATER RESOURCE PROJECTS, KANSAS PORTION OF THE ARKANSAS RIVER BASIN

The water resource projects in the Kansas portion of the Arkansas River Basin have been carefully reviewed and reflect accurately the need. Many of the projects are safety, environmental and conservation oriented.

In addition to the projects summarized below, we state our unanimous support for the $16 million included in the Corps of Engineers construction funding schedule for the critical **Montgomery Point Lock and Dam Project** to maintain viable commerce of navigation between the McClellan-Kerr Arkansas River Navigation System and the Mississippi River.

We ask for your support for these important Bureau of Reclamation projects

1. **City of Wichita/Groundwater Management District No. 2/State of Kansas Groundwater Recharge Demonstration Project** - a multi-year pilot project to demonstrate the feasibility of recharging a major groundwater resource supplying water to nearly 500,000 municipal, industrial and irrigation users and will also reduce potential degradation of the existing groundwater quality by minimizing migration of saline water. Continued funding request is $500,000
2. **Cheney Reservoir** - on the North Fork of the Ninnescah River providing natural treatment of inflows in the upper reaches of Cheney Reservoir to control poor water quality due to agricultural runoff. The funding request is $235,000 to continue this important project
3. **On-going Water Quality/Environmental Research** - Authorization of on-going Bureau of Reclamation research is critical to protecting existing supplies

We ask for your support for these equally important projects of the Corps of Engineers:

1. **Arkansas City, Kansas Flood Protection** - to protect homes and businesses from catastrophic damages resulting from either Walnut River or Arkansas River flooding. FY '96 funding in the amount of $700,000 is appreciated and continued funding is requested to complete the project
2. **Winfield, Kansas Flood Protection** - this project will raise and extend an existing levee to provide badly needed flood control for the city. FY '96 funding in the amount of $670,000 is appreciated and continued funding is requested to complete the project
3. **Grand (Neosho) River/Basin** - Research in the amount of $500,000 to $600,000 to evaluate the adequacy of federal flood control easements around Grand Lake is needed. The existing problems and needed solutions impact both Kansas and Oklahoma
4. **On-going Water Quality/Environmental Protection Research** - Authorization of on-going Corps of Engineers research is essential as is demonstration project funding
5. **Kanapolis Lake Water Quality Storage Reallocation** - We urge you to support the Kansas Water Office request for the Corps of Engineers to reallocate existing water quality storage for public supply availability for communities

We urge your support of the Department of Interior project:

Quivira National Wildlife Refuge - Complete an engineering study to identify the watershed-based options available for producing the most efficient use of resources for the refuge and irrigation needed to support the area agricultural economy. The funding request is $600,000

Mr Chairman and Members of the distinguished Committee, I am Gerald H Holman, Senior Vice President of the Wichita Area Chamber of Commerce, Wichita, Kansas and Chairman of the Kansas Interstate Committee for the Arkansas River Basin This statement is submitted today, representing the Kansas Delegation Other members of the Kansas Delegation are Arthur T. Woodman, Architect with offices in Wichita, and Frank Liebert, Attorney-At-Law, Coffeyville

We are honored to join with our colleagues from the states of Arkansas, Colorado, Missouri and Oklahoma, which five (5) states, including Kansas, comprise the Arkansas River Basin Interstate Committee We appear before you in unison today and fully endorse the statement of the Chairman of the Arkansas River Basin Interstate Committee

In addition to the important projects listed below, we state our unanimous support for the construction of the critical **Montgomery Point Lock and Dam Project** to maintain viable navigation for commerce between the McClellan-Kerr Arkansas River Navigation System and the Mississippi River The inland waterway is vital to the economic health of the five state area and your support is needed to maintain its future viability We hereby state our unanimous support for the $16 million included in the Corps of Engineers construction funding schedule

We are most grateful and express our thanks to each member of the committee and the full Congress for directing, in Public Law 102-580, that "The Secretary shall proceed expeditiously with design, land acquisition, and construction of the Montgomery Point Lock and Dam on the White River, Arkansas, authorized as part of the McClellan-Kerr Waterway by Section 1 of the River and Harbor Act of July 24, 1946" This will ensure that the facility is in operation as soon as possible at the lowest possible cost.

The water resource projects in the Kansas portion of the Arkansas River Basin have been carefully reviewed by the Kansas delegation and reflect accurately the need Many of the projects are safety, environmental and conservation oriented We are grateful for your past commitment and respectfully request your continued commitment

We ask for your support for these important Bureau of Reclamation projects for the Wichita area

1 **City of Wichita/Groundwater Management District No. 2/State of Kansas Ground water Recharge Demonstration Project** - this is the continuation of a Bureau of Reclamation project to demonstrate the feasibility of recharging a major groundwater resource supplying water to nearly one-half million municipal, industrial and irrigation users. We are grateful for the $1 million funding in FY '95 and FY '96. This technology has application to other areas throughout the nation. The full scale project, when implemented, will capture flood flows from the Little Arkansas River providing water for use during times of low rainfall or dry conditions and will also reduce potential degradation of the existing groundwater quality by minimizing migration of saline water. This project is vital to the future of the metropolitan Wichita area and surrounding farming communities FY '97 funding in the amount of $500,000 is requested for this on-going federally supported project to cost share with City of Wichita funding. Governor Graves, supports this much needed project as a benefit to 20% of the state's population.

2 **Cheney Reservoir** - the reservoir is a major and critical component of Wichita's water supply resources Two environmental problems threaten the water quality and longevity of the reservoir. One is sedimentation from soil erosion and the other is the amount of phosphates entering the water resulting in offensive taste and odor problems. Potential pollution sites in the watershed above the reservoir have been identified along with best management practices that can help reduce the pollution from those sites The City of Wichita has committed $1.2 million to this project for implementing soil conservation practices consistent with the Management Plan. The Bureau of Reclamation constructed the reservoir and has remained involved in on-going support. Federal funding in the amount of $235,000 is requested as cost share support for the local funding provided by the City of Wichita

3 **On-going Water Quality and Environmental Research** - Aggressive and innovative treatment techniques must be identified and implemented to protect our valuable water resources from increasing environmental problems. Authorization of on-going Bureau of Reclamation research is critical to protecting existing resources

You have given your previous support to many important local protection projects in Kansas Many projects are now completed and we are most grateful for your construction authorization. Since our agricultural communities have historically experienced major flood disasters, we are justifiably interested in rapidly moving to completion other needed projects These projects all have multi-state impacts involving portions of the State of Oklahoma However, our small communities do not have the funds nor engineering expertise necessary to provide adequate flood damage reduction measures.

Therefore, consistent with your previous authorizations and consistent with the multi-state direction of the Corps of Engineers, we ask for your continued support for the following projects:

1. **Arkansas City, Kansas Flood Protection** - this project is in response to a critical need to protect the environment, homes and businesses from catastrophic damages that would result from either Walnut River or Arkansas River flooding which could include flood borne petroleum products from the Arkansas City

refinery The Corps of Engineers has extensively coordinated with the city and various state agencies in the development of this project, which when completed, will eliminate damage in a multi-county area and also result in benefits to the State of Oklahoma just a few miles south of the project. We appreciate the $700,000 FY '96 funding and request your continued support for the immediate implementation of the construction

2 **Winfield, Kansas Flood Protection** - this project will raise and extend an existing levee to provide badly needed flood control for the city. Your FY '96 support in the amount of $670,000 is appreciated. All design studies are completed and we urge your continued support for the prompt initiation of the project construction to insure the safety of Winfield's citizens.

3 **Grand (Neosho) River/Basin** - the Grand/Neosho River Committee was formed at the request of both the Kansas and Oklahoma congressional delegations to evaluate water resource problems affecting both Kansas and Oklahoma. We appreciated your $500,000 FY '96 funding to initiate the Flood Easement Adequacy Study to evaluate the adequacy of federal flood control easements around Grand Lake A basin-wide Watershed Study to evaluate water resource problems in the river basin is also needed and we request $500,000 to $600,000 as an initial allocation

4 **On-going Water Quality/Environmental Protection Research** - Environmental problems are increasing the importance of continued research to protect our valuable water resources. Aggressive and innovative treatment techniques must be identified and implemented. Authorization of on-going Corps of Engineers research is essential, and as appropriate, demonstration project funding

5 **Kanapolis Lake Water Quality Storage Reallocation** - agricultural communities in central Kansas are in need of additional public water supplies. A cost effective solution is reallocating existing water quality storage in Kanapolis Lake for public supply availability. The Kansas Water Office has made a request of the Corps of Engineers to authorize the reallocation which is a most expeditious solution for central Kansas. We urge you to support our request of the Corps of Engineers

Your authorization of funding for a most important U.S. Department of Interior, U.S Fish & Wildlife Service project is also requested

Quivira National Wildlife Refuge - this is a joint project involving the U.S. Fish & Wildlife Service - Region 6, the State of Kansas, the local groundwater management district and the Water Protection Association of Central Kansas Quivira provides a resting area for waterfowl and endangered species during their annual migrations in the Central Flyway The Refuge is comprised of a series of shallow pools totaling about 6,500 surface acre-feet and is part of the Rattlesnake Creek Basin. The Rattlesnake Creek Basin has experienced significant groundwater and streamflow declines in recent years due to climatic conditions as well as expansion of irrigated agriculture An engineering feasibility study is needed to identify the watershed-based options available for producing the most efficient and effective use of the water resources of the Rattlesnake Creek Basin to protect the Wildlife Refuge as well as the agriculture economy of the area. FY '96 funding in the amount of $760,000 for the U S. Department of Interior, U S Fish & Wildlife Service is appreciated. We request an additional $600,000 in FY '97 to complete the study

Finally, we are most concerned with the proposal to limit participation of both the Corps of Engineers and Bureau of Reclamation in development of water resources infrastructure It is vital to have the integrity and continuity these agencies provide on major public projects. Your thorough reconsideration of this new direction will be greatly appreciated

Mr Chairman and Members of this Committee, we thank you for the dedicated manner in which you and your distinguished colleagues in the Congress of the United States have dealt with the Water Resources Programs and for allowing us to present our views and recommendations to you We look forward with great expectations and hope for the future of water resource development in Kansas and the Arkansas River Basin.

PREPARED STATEMENT OF JAMES M. HEWGLEY, JR., OKLAHOMA CHAIRMAN, ARKANSAS RIVER BASIN INTERSTATE COMMITTEE, TULSA, OK

Mr. Chairman and Members of the Committee, I am James M. Hewgley, Jr., Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

It is my privilege to present this statement on behalf of the Oklahoma Members of our committee in support of adequate funding for water resource development projects in our area of the Arkansas River Basin. Other members of the Committee appointed by the Governor are: Mr. Harold B. Scoggins, of Muskogee (recently deceased); Mr. E. R. Albert, Jr., Tulsa; Mr. Robert S. Kerr, Jr., Oklahoma City; and Mr. Coleman Fite, Muskogee.

Together with representatives of the other Arkansas River Basin states, we fully endorse the statement presented to you by the Chairman of the Arkansas River Basin Interstate Committee. We appreciate the opportunity to present our views of the special needs of our State concerning several studies and projects.

As we have testified in the past, serious problems have arisen at the waterway entrance to the McClellan-Kerr Arkansas River Navigation System. Extensive testing has proved that construction of **Montgomery Point Lock and Dam** will be necessary to correct the problem. This project must be started soon to regain/maintain the shippers confidence in the reliability of the system.

Your recognition, as well as that of the Administration, of the importance of constructing Montgomery Point Lock and Dam is very gratifying. To date you and your colleagues have appropriated $18.6 million for engineering, site acquisition and construction. This action is very much appreciated.

We are thankful the Congress, in Public Law 102-580 directed that "The Secretary shall proceed expeditiously with design, land acquisition and construction of the Montgomery Point Lock and Dam on the White River, Arkansas, authorized as part of the McClellan-Kerr Waterway by section 1 of the River and Harbor Act of July 24, 1946 (60 State. 635-636)."

We respectfully request the Congress appropriate $16 million for the FY '97 budget cycle to complete design engineering and continue construction for the authorized project. This amount has been rounded up from the Corp of Engineers approved and published schedule of construction funding for FY '97 (at 1993 dollars). This funding will ensure that the needed facility is in operation as soon as possible at the lowest possible price.

Mr. Chairman, members of this distinguished Committee, we respectfully remind each of you that this navigation system has brought low cost water transportation to Oklahoma, Arkansas and surrounding states. **The Federal Government has invested $1.4 billion in constructing** the system and there has been **$3.5 billion invested**

by the public and private sectors to develop the land side facilities and more than **53,000 jobs have been created** as a result.

The Interstate Committee recommends that $250,000 be made available to the Tulsa District, Corps of Engineers, to initiate an ***Assessment of the McClellan-Kerr Arkansas River Navigation System and related purposes*** in FY '97. This assessment will evaluate the economic impacts that the construction and operation of this major resource system has had on the Nation, the impacted states and local areas along the system. Project outputs will be identified as to incidence of principal beneficiary and nature and magnitude of the outputs (benefits). Project features will be examined from the perspective of whether or not greater efficiencies can be achieved by de-federalizing project components including the operation and maintenance of those features such as transfer to non-federal governmental bodies or the private sector. Such an assessment will provide a basic model for similar projects around the Nation.

We are pleased that the President's budget includes funds to advance work for Flood Control in Oklahoma. Of special interest to our committee is funding in the range of $5 million for **Mingo Creek, Tulsa, Oklahoma** and $4.7 million for **Fry Creeks, Bixby, Oklahoma**.

We also support two proposed studies supported by the **Grand-Neosho River Committee** which consist of a basin-wide ***Watershed Study*** to evaluate water resource problems in the Grand-Neosho River basin in Kansas and Oklahoma; and a ***Flood Easement Adequacy Study*** which would evaluate the adequacy of Federal flood control easements around Grand Lake. The Grand-Neosho River Committee is a multi-state organization with members representing a full range of basin concerns and water resource development uses. We request an initial study allocation of $500,000 to $600,000 for the Watershed Study and request an initial study allocation of $2 to $2.5 million in FY '97 to initiate the study and obtain necessary mapping and other base data.

Studies conducted by the Tulsa District in the 1970's identified the potential for flood damage reduction measure in the **Cimarron River Basin**. Several potential multiple purpose reservoirs were considered for development in response to needs for flood control, water supply, fish and wildlife and recreation. Development and operation of these projects in conjunction with the existing system of reservoirs in the Arkansas River Basin would provide for flood damage reduction along the Cimarron River downstream, as well as along the Arkansas River from Keystone Dam near Tulsa to Fort Smith, Arkansas. These projects would also offer the potential for development of hydropower and navigation benefits along the McClellan-Kerr Arkansas River Navigation System. The committee requests funding of a reconnaissance study of the Cimarron River Basin in the range of $500,000 to $600,000.

The Oklahoma Arkansas River Basin Interstate Committee also requests your continued support and funding for the **Partners for Environmental Progress** (PEP) program which was initiated under the Energy and Water Development Appropriations Act for fiscal year 1991 and has been re-approved and funded every year through fiscal year 1996. We are hopeful that the President's budget includes funding for this program again in FY '97. **The PEP program encourages greater private sector investment in water dependant environmental infrastructure which has previously been publicly funded.** Small towns, counties, water and sewer authorities, utility districts and other public bodies who would not otherwise have the technical support or financial expertise are provided that support by the Corps of Engineers. We encourage you to continue to fund this important program to help these small cost-sharing sponsors deal with their infrastructure problems and facilitate infusion of private capital into here-to-fore public projects.

We urge you to continue your support of the **Planning Assistance to States Program** (Section 22 of the 1974 Water Resources Development Act.) Which authorizes the Corps of Engineers to use its technical expertise in water and related land resource management to help States and Indian Tribes with their water resource problems The program is used by many states to support their States Water Plan. As natural resources diminish, the need to manage them becomes more urgent. We urge your continued support of this program as it supports States and Indian Tribes in developing resource management plans that will benefit citizens for years to come.

We also request your continued support of the **Flood Plain Management Services Program** (Section 206 of the 1960 Flood Control Act) which authorizes the Corps of Engineers to use its technical expertise to provide guidance in flood plain management matters to all private, local, state, and Federal entities. The objective of the program is to support comprehensive flood plain management planning. The program is one of the most beneficial programs available for reducing flood losses. The program provides assistance to officials from cities, counties, states, and Indian Tribes to ensure that new facilities are not built in areas prone to floods. Assistance is also provided on flood warning, flood proofing and other flood damage reduction measures. Critical flood plain information is also provided on a cost reimbursable basis to home owners, mortgage companies, realtors and therefore use in flood plain awareness and flood insurance requirements.

We support funding for the **Continuing Authorities Program** , including the **Small Flood Control Projects Program,** (Section 205 of the 1948 Flood Control Act, as amended) and the **Emergency Streambank Stabilization Program,** (Section 14 of the 1946 Flood Control Act, as amended). We want to express our appreciation for your continued support of those programs. Although the Small Flood Control Projects Program addresses flood problems which generally impact smaller communities and rural areas and would appear to benefit only those communities; the impact of those projects on economic development crosses county, regional and sometimes state boundaries. The communities served by the program frequently do not have the funds or engineering expertise necessary to provide adequate flood damage reduction measures for their citizens. Continued flooding can have a devastating impact on community development and regional economic stability. Likewise, the Emergency Streambank Stabilization Program provides quick response engineering design and construction to protect important local utilities, roads and other public facilities in smaller urban and rural settings from damage due to streambank erosion. The protection afforded by this program helps insure that important roads, bridges, utilities and other public structures remain safe and useful. By providing small, affordable, and relatively quickly constructed projects, these two programs enhance the lives of many by providing safe and stable living environments.

We also request your continued support of and funding for the **Environmental Restoration Program** (Section 1135 of the Water Resources Development Act of 1986). The Environmental Restoration Program is a relatively new program which offers the Corps of Engineers a unique opportunity to work to restore valuable habitat, wetlands and other important environmental features which previously could not be considered.

On a related matter of grave importance to the Interstate Committee, we would respectfully request that during the reauthorization of the ***Endangered Species Act,*** the Congress should consider amending the Act to require the consideration of economic impacts in a decision to list a species as endangered or threatened; as well as mandatory designation of critical habitat at the time the specie is listed, if critical habitat is to be considered. In addition we request that the Congress direct the U.S. Fish & Wildlife Service to develop procedures to objectively share information and specimens with parties that have a beneficiary interest in the listing process.

UPPER MIDWEST WATER RESOURCE DEVELOPMENT PROJECTS

LETTER FROM GOV. JIM EDGAR, STATE OF ILLINOIS

March 29, 1996

The Honorable Pete Domenici
Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate
131 Dirksen Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

Please consider this as formal testimony conveying the State of Illinois' interest concerning the Fiscal Year 1997 appropriations for the U.S. Army Corps of Engineers. I ask your consideration of and favorable action upon the state's requests.

The enclosed list identifies those Corps of Engineers' projects of highest priority to the State of Illinois. Five state agencies reviewed these projects and found them worthwhile based on need, cost, local sponsorship, and Corps interest. The list includes both items in the Administration's FY 97 budget request and others of the highest priority that we propose for special consideration.

I recommend inclusion of all of these projects in the FY 1997 Energy and Water Development Appropriations Act. Should you require any supporting documentation for these projects or other information, please do not hesitate to contact my Washington Office (202/624-7760). Please include this correspondence in the hearing record of the Subcommittee on Energy and Water Development.

Sincerely,

Jim Edgar

Jim Edgar
GOVERNOR

The State of Illinois recommends that the following ongoing U.S. Army Corps of Engineers projects be funded in the Fiscal Year 1997 Energy and Water Development Appropriations Act. These recommendations generally support the President's recommendations, except the Upper Mississippi-Illinois Waterway Navigation study and EMP are seriously under-funded.

SURVEYS

Alexander and Pulaski Counties	$175,000
Freeport	200,000
Upper Mississippi & Illinois Navigation Study	13,000,000
Waukegan Harbor	200,000

PRECONSTRUCTION ENG. & DESIGN

Chicago Shoreline, Reach III	60,000*
Des Plaines River	350,000
Nutwood Drainage & Levee Dist.	160,000

CONSTRUCTION

Chicago Shoreline	1,300,000
East St. Louis	2,300,000

Loves Park	2,000,000
Melvin Price Lock and Dam	4,000,000
Mississippi River Between the Ohio & Missouri Rivers	4,300,000
Mississippi River, Major Rehab:	
Lock & Dam 24	3,000,000
Lock & Dam 25	3,000,000
O'Hare Reservoir	1,918,000
Olmsted Lock & Dam	70,352,000
Rend Lake (Design Deficiency Corrections)	500,000
Upper Mississippi River System Environmental Management Program	19,455,000

OPERATION AND MAINTENANCE

Illinois supports the Corps' budget for continued satisfactory maintenance and operation of navigation, flood control and multipurpose projects, and adequate manpower for public service activities related to the water resources in and bordering on the state. Also, Illinois urges that future major rehabilitation of Upper Mississippi River and Illinois Waterway Locks and Dams be taken into account in future budgets.

ADDITIONAL REQUESTS

In addition, the State of Illinois recommends that the following high priority projects be included in the FY 1997 Corps of Engineers' appropriations:

LAKE MICHIGAN DIVERSION (Operation and Maintenance)

The Chicago District is responsible for diversion measurements and accounting of lake diversion at Chicago. In addition to the normal costs associated with diversion accounting, the Corps is accruing additional expenses associated with metering and the provision of crucial factual assessments to the ongoing state-federal mediation process that should lead to a revised accounting system. As a result, there is a need for $760,000 for FY 1997.

CHICAGO HARBOR (Operation and Maintenance)

There is a need for $4.7 million to rapidly rehabilitate the Chicago Lock. Excessive leakage through this lock interferes with lake diversion measurements and accounting.

MISSISSIPPI RIVER MODEL

There is a need for $500,000 in general investigation funds to complete a study of Mississippi River flood modeling, as proposed by Gen. Galloway's Floodplain Management Task Force, to update the 1975 system profiles used for flood control planning.

NORTH LIBERTYVILLE ESTATES LEVEE

The state supports construction of this Section 205 small flood control project and is contributing up to $200,000. The federal funding required is $1.5 million.

CHAIN OF ROCKS CANAL LEVEE

There is a need for $500,000 to $800,000 to complete investigative analyses
and to initiate preparation of plans and specifications for remedial work.
The levee lying along the east bank of the Chain of Rocks Canal has demonstrated design deficiencies which must be corrected to adequately protect the thousands of residents residing behind it.

CHICAGO SHORELINE (PED and Construction)*

There is a need for $60,000 to complete preconstruction engineering and design for Reach III of the Chicago Shoreline.

PREPARED STATEMENT OF THOMAS S. FULLER ON BEHALF OF THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

On behalf of the Metropolitan Water Reclamation District of Greater Chicago (District), I want to thank the Subcommittee for this opportunity to present our priorities for Fiscal Year 1997 and, at the same time, express our appreciation for your support of the District's projects in years past. The District is the local sponsor for three Corps of Engineers priority projects of the Chicagoland Underflow Plan: the O'Hare, McCook and Thornton Reservoirs. We are requesting the Subcommittee's full support for these vital projects. Specifically, we are asking that $1.9 million be included for the O'Hare Reservoir in the Subcommittee's Energy and Water Development Appropriations Act for FY 1997. No new FY 1997 funding is needed for the McCook & Thornton Reservoir project as we expect to use the $6.7 million in carry-over funding for this project. The following text outlines these projects and the need for the requested funding. Also, attached is a booklet indicating the municipalities in our area which benefit from these projects and the need for the requested funding. Also, attached is a booklet indicating the municipalities in our area which benefit from these projects. The booklet reviews the history of the issues involved, including newspaper articles and pertinent data from the Corps of Engineers and the Illinois State Water Survey.

The Chicagoland Underflow Plan

The Chicagoland Underflow Plan (CUP) consists of three reservoirs: The O'Hare, McCook and Thornton Reservoirs. The O'Hare Reservoir Project was fully authorized for construction in the Water Resources Development Act of 1986 (P.L. 99-662). The authorization provides for the construction of a 1,050 acre-foot floodwater storage reservoir which will be connected to the existing O'Hare segment of the District's Tunnel and Reservoir Plan (TARP). Adopted in 1972, TARP was the result of a multi-agency effort which included officials of the State of Illinois, County of Cook, City of Chicago and the District.

TARP was designed to address the overwhelming water pollution and flooding problems in the Chicagoland area. These problems stem from the fact that the capacity of the area's waterways has been overburdened over the years and has become woefully inadequate in both hydraulic and assimilative capacities. These waterways were no longer able to carry away the combined sewer overflow discharges nor were they able to assimilate the pollution associated with these discharges. Severe basement flooding and polluted waterways, (including Lake Michigan which is the source of drinking water for millions of people) was the inevitable result. We point with pride to the fact that TARP was found to be the most cost-effective and socially and environmentally acceptable alternative for reducing these flooding and water pollution problems.

The plan called for the construction of new "underground rivers" beneath the area's waterways. The "underground rivers" would be tunnels up to 35 feet in diameter and 350 feet below the surface. To provide an outlet for these tunnels, reservoirs were to be constructed at the ends of the tunnel system. Approximately, 93 miles of tunnels have been constructed or are under construction at a total cost of $2.15 billion and are operational. These tunnels capture the majority of the pollution load by capturing all of the small storms and the first flush of the large storms. Another 16 miles of tunnels costing $409 million need to be completed. The tunnels currently have no place to discharge when they fill up during large rainstorms because the O'Hare, Thornton and McCook Reservoirs have not been built yet. Without these outlets, the local drainage has nowhere to go when large storms hit the area. Therefore, the combined stormwater and sewage back up into over 550,000 homes.

The O'Hare Reservoir - Chicagoland Underflow Plan

The O' Hare Reservoir project is the first component of CUP, the Corps' reservoir plan. Understanding the severe flood threat to the densely populated north central Cook County area, Congress authorized the project in 1986. The project's 1,050 acre-feet of storage is the optimum cost-effective storage capacity for flood control purposes. In the FY 1990 Energy and Water Development Appropriations Act, Congress provided $1.5 million in first-year construction funds for the O'Hare Reservoir and specified that the reservoir be built to at least 1,050 acre-feet in size as authorized, and in full accordance with the cost-sharing percentages specified in Section 103 (a) of the Water Resources Development Act of 1986. The FY 1992 Energy and Water Development Appropriations Act provided $4.0 million in third-year construction funds to continue construction on the O'Hare Reservoir project and contained language directing the Corps of Engineers to award continuing contracts until construction is completed. Total Federal funding contributed since 1990 is $21.6 million for this project. As we have stated to this Committee over the years, the District is the local sponsor for this project and is fully committed to it. The District has already purchased the necessary land at a cost of $4.4 million and has spent $3.0 million for utility relocation. The District will continue to meet its remaining cost-sharing obligations under the law, and will contribute $1.6 million in cash for this project.

Based on the present high flood risk and potential damage due to inadequate channel capacity, we, along with our supportive congressional delegation, are requesting that the Subcommittee include $1.9 million to complete critical construction work on the O'Hare Reservoir project in the FY 1997 Energy and Water Development Appropriations Act. With this ability, we will be completing the prototype reservoir for the overall TARP system. We are pleased to be completing this first fully operating element and bringing critical flood protection to the north central Chicagoland area, an area which has been ravaged in years past.

Based on two successive Presidentially-declared flood disasters in our area in 1986 and again in 1987 and dramatic flooding last June, we believe the probability of this type of flood emergency occurring before implementation of the critical flood prevention measure is quite high. As the public agency for the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal of construction and completion.

The McCook and Thornton Reservoirs - Chicagoland Underflow Plan

The McCook and Thornton Reservoirs of the Chicagoland Underflow Plan (CUP) were fully authorized for construction in the Water Resources Development Act of 1988 (P.L. 100-676). CUP, as previously discussed, is a flood protection plan that is designed to reduce basement and street flooding due to combined sewer back-ups. These projects are the second and third components of CUP, they consist of reservoirs to be constructed in existing quarries at McCook in west suburban Chicago and Thornton in south suburban Chicago.

These reservoirs will provide a storage capacity of 15.3 billion gallons and will produce annual benefits of $75 million. The total potential annual benefits of these projects are approximately twice as much as their total annual cost. The District, as the local sponsor, is actively pursuing land acquisition for these three projects, and is prepared to meet its cost sharing obligations under P.L. 99-662.

These projects are a very sound investment with a high rate of return. They will enhance the quality of life and the safety and the peace of mind of the residents of this region. The State of Illinois has endorsed these projects and has urged their implementation. In professional circles, these projects are hailed for their farsightedness, innovation, and benefits.

We take particular pride in the Thornton Reservoir because of our contribution to the project. Our staff saw reason to invest time and talent to review and evaluate the draft recommendations for the Thornton Reservoir, which the Corps of Engineers first released in February 1986. We are proud that our review and evaluation resulted in the formulation of proposals for design changes which can produce $24 million in savings to the taxpayers at large. These changes involved coordination and consolidation between four agencies at the federal, state and local levels, and were welcomed by the Corps and incorporated in the final report.

We have been very pleased that over the years the Subcommittee has seen fit to include critical levels of funds for this important project. We were delighted to see the $11,500,000 in unobligated construction funds included in the Administration's FY 1996 budget. However, it is critical that we receive carry-over funds in FY 1997 to maintain the commitment to this project. Given the Corps' progress, Congress' direction and in order to provide critical flood relief, the District is urgently requesting that the Subcommittee include $6.7 million in carry-over construction funding for the McCook and Thornton Reservoir projects in the FY '97 Energy and Water Development Appropriations Act.

Summary

Given the broad sweep of our jurisdiction and the severity of flooding in our area, the Corps was compelled to develop a plan that would compliment the uniqueness of TARP and be sizable enough to accommodate our service area. With a combined sewer area of 375 square miles, consisting of the City of Chicago and 51 contiguous suburbs, there are 550,000 homes within our jurisdiction which are subject to flooding at any time. Of these, 185,000 homes flood on a regular basis because of inadequate conveyance and outlet capacity.

The annual damages sustained exceed $150 million. If these projects were in place, these damages could be eliminated. We must consider the safety and peace of mind of the two million people who are affected as well as the disaster relief funds that will be saved when these projects are in place. As the public agency in the greater Chicagoland area responsible for water pollution control, and as the regional sponsor for flood control, we have an obligation to protect the health and safety of our citizens. We are asking your support in helping us achieve this necessary and important goal. It is absolutely critical that the Corps' work, which has been proceeding for several years, be continued on schedule.

Therefore, we urgently request that $1.9 million be included in the FY 1997 Energy and Water Development Appropriations Act to complete construction for the O'Hare Reservoir and $6.7 million in carry-over construction funding for the McCook and Thornton Reservoirs be included in the appropriations bill.

Again, we thank the Subcommittee for its support of our projects over the years and we thank you in advance for your consideration of our request this year.

PREPARED STATEMENT OF ROBERT J. BYRNES, MAYOR, CITY OF MARSHALL, MN

Chairman Domenici, and Members of the Appropriations Subcommittee, I appreciate the opportunity to submit this testimony requesting $1.4 million in federal funds to begin construction of Stage II of the flood control project at Marshall, Minnesota. The $850,000 appropriated by this Committee in the FY 1996 Appropriations Act, and the $490,000 in State and local funding have permitted us to initiate the work required in Stage I. The vulnerability of the community to severe flood events, however, creates an urgency to complete this project as soon as reasonably possible. I would like to request that the full text of my statement be included in the record.

Project Authority, Funding, and Status:

The Marshall Flood Control Project was authorized in the Water Resources Development Act of 1986. The total project is estimated to cost $9.98 million of which Federal costs are estimated to be $7.22 million, with non-Federal costs of $2.76 million. The non-Federal costs have been provided through the State flood mitigation grant program, and by bonding by the City of Marshall. The Design Memorandum and Environmental Assessment were completed and approved in 1987. The Project Cooperation Agreement (PCA) has been successfully negotiated between the Marshall City Council and the District Office of the Army Corps of Engineers. It is now awaiting final approval by the Corps Headquarters in Washington, D.C. Only temporary easements and a five-acre dredged materials disposal site will be needed for Stage I construction of the project.

The plans and specifications for Stage I were completed and approved in September of 1993. The FY 1996 appropriation for the project has permitted the Corps to move forward with the advertisement for construction bids for Stage I. The construction work consists primarily of the repair and modification of the existing diversion channel. The request for bids for Stage I construction is currently scheduled for June 30, 1996, however, all actions needed prior to publishing the construction bids will have been accomplished with the final approval of the PCA. The development of plans and specifications for Stage II are scheduled to be initiated on February 28, 1996, according to the Corps' project schedule. The City is responsible for the dredging of the channel at a local cost of $318,000, and will be incorporated into Stage I construction.

Stage I - Corps Schedule and Costs *
Federal Share $850,000 Non-Federal Share $490,000

Activity	Beginning Date	Completion Date
Plans & Specs Initiated		Complete
Plans & Specs Approved		9/30/93
Initiate Real Estate. Acquisition	None required	
Construction Contract Advertised	6/30/96	6/30/96
Construction Contract Awarded	8/31/96	8/31/96
Construction Contract Completion		12/31/97

* The initiation of Stage II construction is not contingent on the completion of Stage I construction.

Project Location:

The City of Marshall is located in the Southwest corner of the State of Minnesota, about 145 miles southwest of St. Paul. It is near the center of the Redwood River basin. Southwest State University, the business district, and most of the homes of the nearly 14,000 citizens are located in the floodplain of the Redwood River. Marshall serves as the county seat of Lyon County, and is the commercial and agricultural center for the region.

The Redwood River enters the southwest corner of the City, winds its way through the City, exiting at the northeast boundary near the University campus. The

Redwood River basin serves an elongated drainage area of approximately 743 miles. The river's elevation drops at the significant rate of 19 feet per mile until it reaches the City. There the river slope flattens out to an average of about 4 feet per mile. The lack of a confining valley, and the reduction in grade on the plain, contributes significantly to overland flooding in the Marshall area. The geological decline in the elevation in the 50 miles from the watershed area to the City of Marshall is greater than the Mississippi River elevation decline from Minneapolis to New Orleans.

Historical Summary:

Water and land related problems in the Minnesota River basin was first investigated by the St. Paul District Engineer in 1934, but his study did not address the flooding and related problems in Marshall. In 1960, after the severe floods of 1957, improvements were recommended by the Corps which included the construction of levees and a floodwater diversion channel.

This flood control project was completed in 1963, by the U.S. Army Corps of Engineers to, "provide protection for the people and property of Marshall from the frequent flood risks." The major feature of the project was a 2.4 mile diversion channel around the west and north sides of the City, a 1,840 foot levee at the upstream end of the project, and other features. The channel was designed to handle a 6,500 CFS flow. The overflow, then, would move naturally into the Cottonwood River Watershed south of Marshall.

In 1969, a flood of 8,090 CFS was experienced in Marshall. The river channel both upstream and downstream from Marshall was inadequate to convey the 1963 design flows either to or from the diversion channel. At flows greater than 3,500 CFS, floodwaters bypass the diversion channel and flood the inner City of Marshall.

As a result of the failure of the 1963 flood control project to protect the City, other studies were conducted by a private engineering firm under the direction of the Corps in 1974. The Corps completed a flood control report in 1976, and a feasibility study in 1979. This report was updated by a reevaluation of the problems in 1984. The current project was then authorized in the 1986 Water Resources Development Act. It is important to note that the project as constructed in 1963, has worsened the potential of flooding for the City. The rate of flow is not adequate to move the flood waters through the diversion channel, and other problems.

The three "Holiday Floods of 1993" (Mother's Day, Father's Day and Independence Day) occurred at both ends of the diversion channel, causing hundreds of thousands of dollars in damages to homes, businesses, and the City's infrastructure. As the water levels remained at flood stage throughout the summer, it created an atmosphere of fear and unrest among the citizens of Marshall

In 1995, the Redwood River was again flowing at capacity, and the City of Marshall narrowly avoided a disaster worse than the floods of either 1969 or 1993. From 9 to 15 inches of rain fell near Montevideo, Minnesota, less than 40 miles from the Redwood Watershed District. If the storm had moved only a few miles to the southwest, the flood waters would have engulfed the City at a rate of 8,000 tc 12,000 cubic feet of water per second. This is a much greater water overflow than that which occurred in the disastrous flooding of 1969, and as much as three times greater than the 1993 floods.

The District Office of the Corps of Engineers provided estimates stating that the City would have incurred millions in property damage, and that flash flooding of this nature could well have resulted in the loss of lives. Corps officials stated that flash flooding of this magnitude would have made most emergency measures futile. As a result of the flat terrain in and around the City, and much of the Marshall community would have been under water.

Project Completion Delayed until the Year 2000:

The Marshall City Council was deeply concerned to learn in a presentation by the Corps' St. Paul District Office in February, 1996, that the project completion date had been extended to the fall of the year 2000, some 18 months later than previously discussed. Originally scheduled as a three-year work project, there was no new construction on the schedule for FY 1997. It should be noted that Stage I construction work planned for 1996, is not a requisite for Stage II construction.

The new schedule delays the initiation of land acquisition for nearly a year, or until after the plans and specifications for Stage II have been completed by March, 1998. All Stage II construction has been postponed on the schedule until the land acquisition is completed. The engineers, in developing the plans and specs for Stage II, can provide a "footprint" of the site by the summer of 1996. The real estate needs for the north end of the project can be acquired in 3-4 months, and the total land and acreage obtained for the project in nine months based on a Fall, 1996 start.

Coordination with County Ditch No. 62 Drainage System Essential:

In addition to the Marshall Flood Control Project, the overall protection of the City requires the reconstruction and modification of the storm sewer drainage system concurrently with the work of the Corps. The examination of the drainage problems was acknowledged in the General Design Memorandum developed by the Corps for Marshall, but is not included, nor is it a part of the funding of this project.

County Ditch No. 62 serves as the storm sewer drainage system for about 60% of the City's corporate limits. The Ditch extends along the northeast part of the City, in close proximity to the levee construction required for the Corps flood control project, and feeds into the Redwood River. With the growth of the community, and the development of property and the University campus, since the construction of the Ditch in 1958-9, the flooding problems in the City have been exacerbated by the lack of drainage and poor water movement in a system that is no longer adequate for the community. Construction is scheduled to begin in the Summer of 1997.

The City of Marshall, in cooperation with Lyon County and the State of Minnesota, a comprehensive storm water system has been planned, designed, and is jointly funded by FEMA, the State of Minnesota, Lyon County and the City governments at a total cost of slightly more than $3 million. There are elements of the Storm Sewer/Ditch Project that are closely associated with the Flood Control Project.

1. Construction work for both projects will be required in the same northeastern section of the City;

2. Ponding areas are required for both projects; 7 acres for the flood control project, and 20 acres for the C.D. No. 62 project. Both ponding areas will be located in the northeast section of the City.

3. The C.D. No. 62 Project must remove some 400,000 cubic yards of soil from the ponding area and the ditch. The flood control project may require some of this soil as fill, and topsoil for disturbed areas. The Design Memorandum calls for the purchase of top soil from local suppliers.

4. Unless flood control project is constructed in association with the C.D. No. 62 Project, the back up of flood waters can render the Ditch improvements ineffective.

5. Both projects require the acquisition of real estate in the same area. By coordinating these efforts, the acquisition of property can be accomplished more effectively, and at less cost to both the projects. The lack of

coordination between the two projects will have the potential to create delay factors in one or both of the projects.

The coordination of the construction of these two water resource development projects has the potential for reducing costs, and avoiding overlap and contradictions that may disrupt, or otherwise delay the construction of either or both projects. An ineffective drainage system can defeat the purposes of the flood control project, and the delayed completion of the flood control project opens the possibility of damaging a newly constructed drainage system.

Working together, the goals of both projects can be accomplished in a timely manner, at less cost to governments at all levels. It will, however, require that the Corps' schedule for construction of the Marshall project be modified somewhat to accommodate the differences in the project time lines. Any reductions in the timeline of the project can be accomplished by reducing the time allocated to the City for the purpose of real estate and easement acquisitions, and by not delaying unnecessarily the initiation of new activities. A request has been forwarded to the St. Paul District Office of the U.S. Army Corps of Engineers requesting a meeting to resolve these differences, and to move forward to complete the project in a reasonable and timely manner.

Stage II - Corps Schedule and Costs

Second Project Year - Federal $2.8 million Non-Federal $1.1 million
Third Project Year - Federal $2.992 million Non-Federal $1.17 million

Major Milestones	Date of Action	Completion Date
Plans and Specs Initiated	2/28/96	• • •
Plans and Specs Submitted	2/28/97	• • •
Plans and Specs Approved	• • •	3/31/97
Initiate Real Estate Acquisition	3/31/97	• • •
Real Estate Acquisiti Complete	• • •	3/01/98
Final Real Estate certified/LERRD	• • •	3/01/99
Construction Contract Advertised	3/15/98	• • •
Construction Contract Awarded	4/30/98	• • •
Construction Contract Completed	• • •	9/30/00
Project Construction Complete	• • •	9/30/00

The City believes that the construction of Stage II can and should be awarded by April 30, 1997, thus shortening the project completion date by one full year.

- The Design Memorandum has designated the approximate number of acres for which fee titles would be needed (109 acres), perpetual levee easements (29 acres), perpetual channel improvement easements (41 acres), dredged material disposal site (5 acres), perpetual flowage easements (13), and temporary construction easements (24 acres).

- The "footprint" for the construction sites can be provided within 90 days of the initiation of the Stage II plans and specifications - or by May 30, 1996, permitting the necessary surveying and legal work to begin at the right time of year.

- The City can complete the acquisition of property and easements in 9 months, by March 1, 1997, at the same time the plans and specifications for Stage II construction are completed.

- According to the Corps' schedule, a construction contract will be advertised 15 days after the plans and specifications are completed, or on March 15, 1997, and awarded on April 30, 1997.

Stage II construction can continue from May 1 through October, 1997, the "good weather months" in Minnesota, moving the project completion date forward by one full year. By prorating the projected costs of the project on a monthly basis, the work will require about half of the $2.8 million of the projected costs for FY 1997, or $1.4 million in Federal funds, and $550,000 in non-Federal funds.

Benefits Received from the Accelerated Schedule:

The benefits achieved by the modified schedule are significant for the community as well as the governmental agencies supporting the project.

1. The citizens of Marshall and their property will be protected from the severe flooding that has both threatened and devastated their community in recent years.

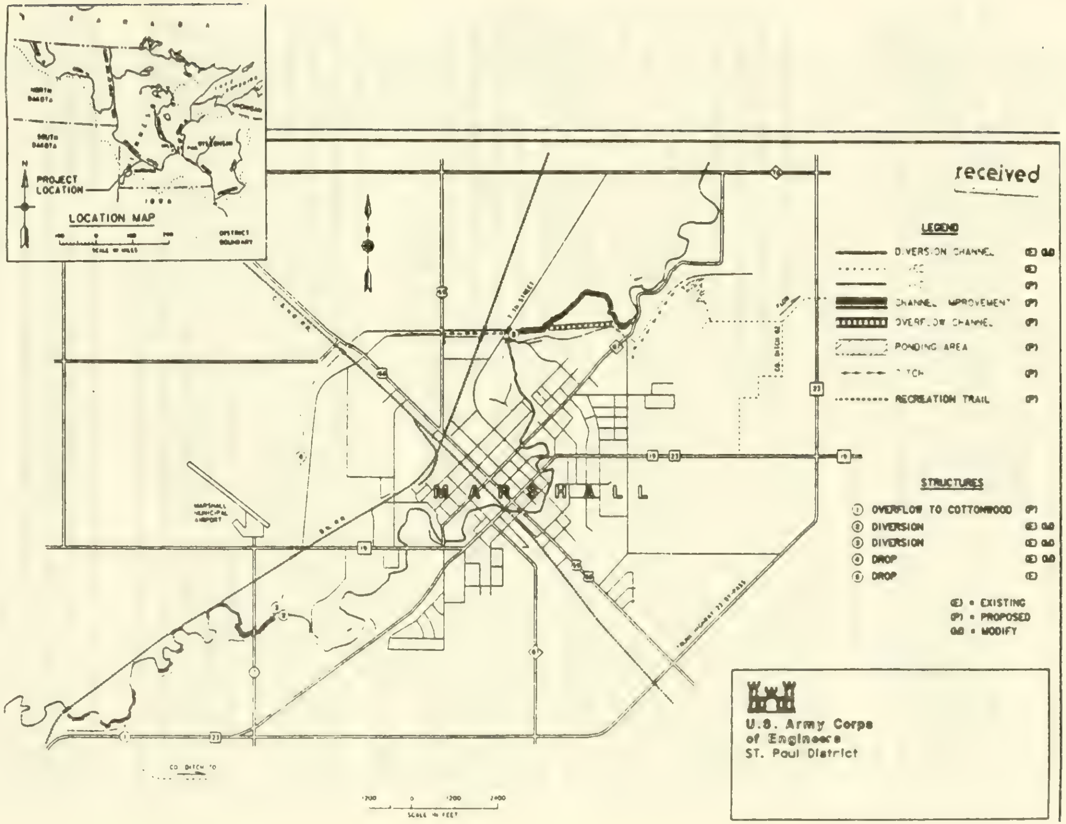
2. The modified schedule will permit the Flood Control Project and the C.D. No. 62 project to move along on parallel tracks, avoiding duplicative efforts, and providing a cost savings for both projects.

3. The different completion dates for the two water resources project create a situation where the construction work on either project is vulnerable to the elements should a severe Spring run-off or heavy rains occur during the construction period. Such an event would result in certain project delays and additional project costs.

4. The real estate and easement acquisitions will move much more quickly, efficiently, less costly, and with less problems with the property owners if conducted during the same time period rather than a year apart as they are now scheduled.

For these reasons, we respectfully request this Subcommittee to provide $1.4 million of Federal funds in the FY 1997 Appropriations Act to initiate the work required under Stage II of the Marshall Flood Control Project. Thank you for the opportunity to bring this critical matter to your attention through this statement. I will be delighted to respond to any questions you may have about the project

	REVISED BUDGET PLAN: MARSHALL FLOOD CONTROL PROJECT				
	Through FY '95	Year 1-FY 1996	Year 2-FY 1997	Years 3 & 4-FY 1998-1999	TOTAL COSTS
LANDS AND DAMAGES			700	254	954
CONSTRUCTION					
Stage 1					
Levees		99			99
Channels		368		28	396
Relocations		100	48		148
Stage 2					
Levees			300	819	1119
Channels			625	955	1580
Overflow Structures			0	1.234	1234
Recreational Facilities				758	758
Real Estate Labor	19	35	21	5	80
PE & D (Cost Shared)	609	548	75	25	1257
PE & D (Relocation)		8	13	13	34
PE & D (Recreation)				90	90
Construction Mgt (Cost Shared)		100	200	126	426
Construction Mgt (Relocation)		3	5	6	14
Construction Mgt (Recreation)				34	34
Contingencies (Federal)			275	1.057	1332
Contingencies (Non-Federal)		79	71	275	425
TOTAL	628	1340	2333	5679	9980
Less Lands and Damages			(700)	(254)	(954)
Less NF Relocations INC PED/CM		(111)	(68)	(19)	(198)
Less NF Contributions (FC)		(300)	(96)	(348)	(744)
Less NF Contributions (Rec)				(441)	(441)
Less Contingencies (NF)		(79)	(71)	(275)	(425)
TOTAL FEDERAL COSTS	628	850	1400	4342	7220
OTHER COSTS					
Lands and Damages			700	254	954
Relocations		100	48		148
CONTINGENCIES (NF)		79	71	275	425
CASH					
Cash (FC)		300	96	348	744
Cash-Relocation (PED & CM)		11	18	19	48
Cash (Recreation)				441	441
TOTAL (NON-FEDERAL)		490	933	1337	2760
TOTAL PROJECT COST	628	1340	2333	5679	9980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LEGEND
DIVERSION CHANNEL (E) (M)
(E)
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CHANNEL IMPROVEMENT (P)
OVERFLOW CHANNEL (P)
PONDING AREA (P)
DITCH (P)
RECREATION TRAIL (P)
STRUCTURES
① OVERFLOW TO COTTONWOOD (P)
② DIVERSION (E) (M)
③ DIVERSION (E) (M)
④ DROP (E) (M)
⑤ DROP (E)
(E) = EXISTING
(P) = PROPOSED
(M) = MODIFY
U.S. Army Corps
of Engineers
ST. Paul District
MARSHALL
MARSHALL MUNICIPAL AIRPORT
CO. DITCH 70
SCALE IN FEET
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2400
LOCATION MAP
CANADA
NORTH DAKOTA
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IOWA
DISTRICT BOUNDARY
SCALE IN MILES
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68
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PREPARED STATEMENT OF JAY L. KIMBLE, MAYOR, CITY OF STILLWATER, MN

Chairman Domenici, Ranking Member Johnston, and Members of the Appropriations Subcommittee, I appreciate the opportunity to submit this testimony requesting $2.85 million in federal funds to complete Phases I and II of the retaining wall system on the St. Croix River at Stillwater, Minnesota. The retaining wall protects the fragile riverfront, and the floodplain of downtown Stillwater from high water levels and the flooding that occurs each spring. I would like to request that the full text of my statement be included in the record.

Legislative Summary:

This project was first authorized for $3.2 million in the Water Resources Development Act of 1992, and this Committee designated $2.4 million in federal funds for the purpose of designing, repairing, extending, and expanding the levee wall system in the FY 1994 Appropriations Act. The Minnesota Legislature has set aside $400,000 in State funds for the first phase of the project, and the Governor and Legislature have recommended $375,000 of additional funding in 1996, for the first two phases of the project. The City of Stillwater set aside $750,000, which with the $750,000 of State funds, will provide the required non-Federal matching funds needed for Phase I and II of the project.

Recognizing that additional funds would be necessary, and the urgency that the work be completed as soon as possible, the Senate Environment and Public Works Committee has authorized $11.6 million for the reconstruction of the existing levee, the extension of the levee to the North, and for the expansion of the levee wall system by the construction of a flood wall. The project will then provide the City with a fifty year flood protection program. We are testifying before the House Water Resources and Environment Subcommittee today, and are confident that they also will increase the project authorization in the mark-up of their bill.

Project Phases:

The $2.85 million requested will be used to complete the repair and reconstruction of the existing levee, and to extend the levee 900 feet along the North end of the waterfront to prevent the annual flooding that occurs in that area. In developing the plans and specifications for the project, the U.S. Army Corps of Engineers has divided the project into three phases:

Phase I includes the repair and reconstruction of the existing 1,000 foot levee wall system where severe erosion has occurred, the development of the plans and specifications for Phase I, the preliminary design for Phases II and III, and the rip rap treatment of the South end of the levee. The rise in the elevation at that point permits rip rap to be used rather than extending the levee wall system.

Phase II includes the extension of the levee wall 900 feet to the north, and will require approximately 4 feet of fill along the waterfront, and the completion of the plans and specs for Phase II. The North end of the riverfront is the point in the river hat floods annually, making the emergency roadway next to the levee unusable for 4-6 weeks each Spring.

Phase III consists of the construction of a secondary flood wall approximately 125 feet inland from the existing structure. The wall will extend about two feet above the ground, with sheet piling will be driven 15 to 20 feet below the surface. This wall will provide the City with a 50-year flood protection plan, and with the use of sandbags, a 100-year protection program.

Project Funding Status:

The "Design Memorandum" developed by the Army Corps of Engineers was completed in March, 1995, and includes the preliminary design for all three phases of the project.

The completion of the total project will require $8.7 million in Federal funds of which $2.4 million were appropriated in the FY 1994 Act. The completion of Phase I and II will require $2.85 million in Federal funds, and the completion of Phase III approved, will require $4.6 million. State and local resources will provide the 25% non-Federal share.

We are aware of the tight budget constraints under which this Committee is working. We are, therefore, giving our first priority to the allocation of the funds in FY 1997 that can resolve the most critical problem facing our community, - - the deterioration of the levee wall protecting our City. This work will require $2.85 million in Federal funds which will be used to complete phases I and II, the repair, reconstruction of the damaged levee wall system, and the 900 foot extension of the levee.

The Retaining Wall and Current Conditions:

The wall system and the foundation on which the lower wall rests has experienced severe erosion over the past ten years or so. Preliminary reports by the Army Corps of Engineers and the Short, Elliott, and Hendrickson (SEH) engineering firm, warn that extensive repair, replacement, and extension of the wall system must be initiated immediately.

The retaining wall system was built by the Works Progress Administration (WPA) in 1937-38, to provide protection to the commercial section of the City, and the docking areas of boats and barges. Fifty-five years ago, there was a crisis, just as there is today. The Corps was building a new lock dam on the Mississippi River at Red Wing, Minnesota that would back up the waters of the St. Croix. The earthen and stone levee of the early 1930's, gave the City some protection, but would quickly wash away with the high waters that would sure to follow when the Red Wing Dam was completed, and the break up of the ice each spring.

Stillwater is located on the West bank of the St. Croix River. It provides the boundary line between Minnesota and Wisconsin for about 120 miles until the St. Croix flows into the Mississippi River. The St. Croix is one of America's first "Wild and Scenic Rivers," and is subject to the legislation that protects these beautiful landmarks of our nation. One of the few lift bridges in the upper Midwest spans the river from Stillwater to Houlton, Wisconsin. The base of the bridge is built into the levee wall. The failure of the wall at that point would result in the closing of the bridge for some time, according to the U.S. Army Corps of Engineers.

An emergency city street runs parallel to the upper section of the wall. The roadway is used by the City for wall maintenance, emergency medical and river rescue work, and serves the fire department by providing access to river water during fire emergencies in historic downtown Stillwater. It also provides access to several businesses that are located close to the river on the north and south ends of the wall system. The street is flooded annually in the spring for 30 to 45 days, restricting any traffic to the northern section of the river frontage. This flooding occurs past the north end of the existing retaining wall, and extends about a thousand feet past the end the levee wall. The proposed extension of the wall, and the raising of the level of the flood plain with fill, would have eliminated this problem every year but two, since 1950.

Extensive work on the sewer system in downtown Stillwater was completed in the fall of 1992. The most serious concern, however, is the major sanitary trunk sewer line which services the City. It is located less than 100 feet from the levee wall, and runs parallel to, the wall. Given the content of the soil in that area, the failure of the wall toward the south end of the levee could result in the failure of the pumping system, and the dumping into the river, much of the 1.9 millions gallons of raw sewage that passes through the system each day. The Metropolitan Waste Control Commission and the Minnesota-Wisconsin Boundary Area Commission have expressed their concerns and fears to the City of Stillwater about this pending disaster.

Soil Condition Suspect

The history of Stillwater has a direct bearing on the crisis that now exists. First established as a settlement in 1838, and founded in 1843, Stillwater became the most productive logging and sawmill operation in the upper Midwest, as well as a major commercial and industrial center. By 1874, 3.5 billion board feet of logs had gone through the St. Croix boom, and nine sawmills were in operation in Stillwater along the riverfront. The lumbering industry did not reach it's peak until 1895, when 373 million board feet of lumber were shipped.

It was this vigorous industry, more than century ago, and the nine sawmills that lined the riverbank, that is basis for much of our concern today. Studies by the Army Corps of Engineers stated that, ". . . . . *Subsurface soils investigations along the waterfront in Stillwater identified pieces of glass, wood and/or layers of sawdust to depths of more than 20 feet below the ground surface as remnants of the early logging and sawmill activities."*

Another study by the U.S. Army Corps of Engineers warn that in case of wall failure,
". . . *erosion would progress at a very swift rate."* The 1986 Feasibility Study by the Corps stated that soil conditions would create an *"unfavorable structural foundation for earthen levees and similar structures."* The report excludes other options by stating that, *"The extent of wood and sawdust precludes the economics of excavating to remove these materials and backfilling with satisfactory soil."*

According to the District Office of the Army Corps of Engineers technical analysis in March, 1992, it was stated that,

> **"There is a strong likelihood that the wall in Stillwater could experience a significant failure within the next two years. Because this whole section of the riverfront property was created by filling during the logging era, soil conditions are suspect. . . .Some areas neighboring this threatened portion of the river have known pockets of sawdust fill. Given these conditions, once the wall failed, erosion would progress at a very swift rate."**

We are fortunate the entire system has not collapsed in the three years since study warned of the pending disaster. The 1993 floods and continuing erosion have created an even greater threat than existed in the 1991 study. Examinations of the structure in 1994 have shown vastly expanded voids in the walls, new cracks have appeared as the walls have shifted, and further deterioration of the area supporting the interstate bridge has become evident.

Failure of the Wall System:

The SEH engineering firm concurred with the analysis of the Corps, as to the subsequent result of such a failure. SEH has conducted two studies and on-site inspections of the retaining wall system; the first in 1987, and the second in 1991. The two studies, four years apart, have enabled the engineers to determine the rate of deterioration of the structure. Findings determined by the studies were:

1. The failure of the wall south of the bridge, where both the lower wall and wharf have failed, has resulted in the washout of the soil causing the upper wall to shift forward;

2. While 150 feet of the wall had failed at the time of the 1987 study, more than 50 additional feet has washed out by 1991. It is now estimated that more than half of the wall has collapsed;

3. Sixty to 250 square foot voids were found underneath the slabs. The voids and gaps under the wall system have made the lower wall vulnerable to an even more rapid deterioration of the levee. The six inch concrete slabs which form the wharf, are disintegrating as a result of the soil erosion beneath the structure.

A 1987 assessment of property values by the Federal Emergency Management Agency (FEMA) has established the value of the property at $32 million in the floodplain area. The Corps' Feasibility Study noted that Stillwater is enrolled in the National Flood Insurance Program. Future flooding of the area would prove costly to the federal and state governments, as well as the City. Since the 1987 assessment the City has spent more than $7 million in infrastructure improvements in the downtown area that lies in the floodplain of the St. Croix, and new construction and rehabilitation projects of historic sites are estimated at more than $9 million.

Historical Significance of the Project:

The historic implications of the retaining wall system, and it's solution, are extremely important to the entire State. In recognition of the historical significance of Stillwater as the "Birthplace of Minnesota," the U.S. Army Corps of Engineers conducted an excellent study completed in July, 1985, entitled, "Historical Reconstruction of the Riverfront: Stillwater, Minnesota."

The purpose of the study was to provide the Corps of Engineers with information to be used in the review of options for flood control of the downtown area of Stillwater. The research identified 117 sites in the floodplain as being significant to the entire State. Twenty-three of these sites are listed on the "National Register of Historic Places" by the U.S. Department of Interior. All are threatened by the deterioration and failure of the retaining wall system, and the flooding of the area.

The U.S. Army Corps of Engineers is obligated to protect the cultural or man-made environment, according to their 1985 Study. This obligation is embodied in the National Historic Preservation Act of 1966, and subsequent laws. The study states that these laws set forth federal leadership in locating, inventorying, and protecting such sites. The proposed reconstruction and extension of the retaining wall system does not threaten, damage, or destroy any of the identified historical sites of the area. The project as authorized in P.L.102-580 would provide the protection necessary to preserve these historical structures for future generations.

St. Croix River Flood Control Studies and Federal Involvement:

Both the upper and lower St. Croix River has been under almost continuous federal, state, and local government studies since 1954. The U.S. Corps of Engineers completed the "St. Croix River Final Feasibility Report and Environmental Assessment" in July, 1986. The initial study of the St. Croix River basin was started in 1965, suspended in 1968, and restarted in 1982, at the request of the City. A reconnaissance study by the Corps of Engineers was completed in 1983. This was followed by the study by the Corps, "Historical Reconstruction of the Riverfront: Stillwater, Minnesota."

While the feasibility study of 1986, was very thorough in most respects, it failed to address the condition of the retaining wall system and its function in flood control in Stillwater. It did, however, fully address the myriad of issues required in flood control projects such as the environment, physical characteristics of the area, fish and wildlife, an analysis of the river flow, past history of flooding, and many others. Earlier studies directed by Congress and/or conducted by the Corps of Engineers which included the St. Croix River, go back to the beginning of the century. They include studies in practically every decade since 1930.

The St. Croix River at Stillwater, MN is under Federal control and management. The Corps of Engineers also conducts the dredging of the channel in the St. Croix River at Stillwater. Barge traffic, boat construction, commercial passenger traffic, and extensive recreational boating continue to maintain a very active port at Stillwater. It is this very activity that has contributed to the deterioration of the retaining wall system, according to the engineers. The Coast Guard shares responsibility with the States of Wisconsin and Minnesota in patrolling the River.

Action Requested:

Based on the information and data from the "Design Memorandum" prepared by the U.S. Army Corps of Engineers, $2.85 million is needed to complete the first two phases of the construction authorized by Congress in FY 1992, and for which $2.4 million was appropriated in FY 1994. These funds will be used to:

1. Complete the repair of the existing walls when such repair is possible;

2. Complete the replacement of the structure when the deterioration has progressed to such an extent to warrant such action;

3. Extend the system 350 feet to the south, using riprap to prevent the continuing erosion of the area around the south end of the wall;

4. Extend the wall 900 feet north of the existing wall, and raise the area with fill by approximately five feet.

Current plans call for construction to begin in July, 1996, on Phase I of the project. Funds made available under FY 1994 Appropriations Act have provided for the development of plans, specifications, and the design of the project, the "Design Memorandum," environmental studies, and administrative costs, and will permit the repair to begin on the damaged levee wall system. Current funding is insufficient to either complete the necessary repairs, nor construct the extensions of the system to the north and south. The construction of the flood wall will be included in Phase III of the project.

As proposed, the project will assure the continued flood protection provided by the existing retaining wall system, eliminate the annual flooding of the emergency access road assuring the year-around availability of fire and rescue services, and provide the critical protection to the sanitary sewer line. It will provide a fifty year flood protection to 130 retail operations, and more than $40 million in property value, provide a knee-wall to serve as a base for emergency sandbagging during extreme flood conditions, thus protecting the property of the City, and the history of the "Birthplace of Minnesota."

We are in compliance with the National Environmental Protection Act, the National Historic Preservation Act (16 U.S.C. 470 (f) and Section 110 (f), 16 U.S.C. 470h-2 (f), the Minnesota State Historic Preservation Office, and have met the special provisions and requirements of Federal and State laws that protect the wild and scenic rivers, and other State and Federal laws that protect the environment and historical sites. We have been working with these agencies over the three years in anticipation of construction and extension of the retaining wall system, and have a summary listing of their letters of support for the project.

For these reasons, we respectfully request that this Subcommittee amend the appropriation for the St. Croix River at Stillwater, Minnesota in the FY 1994 Appropriations Act by increasing the Federal share by $2.85 million. These funds will be used to complete Phases I and II of the project for the repair, construction, and extension of the levee wall system. Thank you for the opportunity to bring this critical matter to your attention through this statement, and we respectfully request the increased appropriation for this project. I will be pleased to respond to any questions you may have.

STILLWATER RETAINING/FLOOD WALLS **** TOTAL PROJECT COST SUMMARY ***

PROJECT: STILLWATER RETAINING/FLOOD WALLS
LOCATION: ST. CROIX RIVER AT STILLWATER, MINNESOTA
DATE PREPARED: 7 MARCH 1995

PREPARED BY: JEFF DAVIS, SHORT · ELLIOTT · HENDRICKSON INC

REVIEWED BY: GLEN BENGTSON, SHORT · ELLIOTT · HENDRICKSON INC

ACCOUNT NUMBER	ITEM DESCRIPTION	ESTIMATED COST ($) (EPD)	CONTINGENCY AMOUNT ($)	%	TOTAL EST COST (EPD)	OMB INFLATION TO 10/95 %	OMB INFLATION TO 10/95 AMOUNT	MID POINT OF FEATURE	OMB (%) INFLATION (+/-)	INFLATED COST AMOUNT ($)	INFLATED CONTG. AMT. ($)	FULLY FUNDED COST
01 · · ·	LANDS AND DAMAGES	1,827,660	273,300	14.95%	2,100,960	1.7%	2,136,676	DEC.,1995	0.80%	$1,873,600	$280,170	$2,153,770
02 · · ·	RELOCATIONS	468,986	96,682	20.62%	565,668	1.7%	575,284	DEC., 1996	3.80%	$495,083	$102,062	$597,145
11 · · ·	LEVEES AND FLOODWALLS	5,199,300	885,706	17.04%	6,085,006	1.7%	6,188,451	DEC., 1996	3.80%	$5,488,620	$934,992	$6,423,612
13 · · ·	PUMPING PLANTS	185,301	37,060	20.00%	222,361	1.7%	226,141	DEC., 1996	3.80%	$195,612	$39,122	$234,735
16 · · ·	BANK STABILIZATION	292,358	44,663	15.28%	337,021	1.7%	342,750	DEC., 1996	3.80%	$308,627	$47,148	$355,775
	TOTAL CONSTRUCTION COSTS	7,973,605	1,337,411		9,311,016		9,469,303			$8,361,542	$1,403,494	$9,765,037
30 · · ·	PLAN, ENG & DESIGN	998,000	150,200	15.05%	1,148,200	2.5%	1,176,905	DEC., 1996	3.80%	$1,061,822	$159,805	$1,221,627
31 · · ·	CONSTRUCTION MANAGEMENT	564,724	75,276	13.33%	640,000	2.5%	656,000	DEC., 1996	3.80%	$600,838	$80,090	$680,928
	TOTAL PROJECT COSTS	9,536,329	1,562,887		11,099,216		11,302,208			$10,024,203	$1,643,389	$11,667,592

NOTES:
1 UNIT PRICES ARE AT APRIL 1995 PRICE LEVELS UNLESS NOTED OTHERWISE.

PREPARED STATEMENT OF KENT CONRAD, U.S. SENATOR FROM NORTH DAKOTA

Mr. Chairman, thank you for this opportunity to present testimony to the subcommittee on behalf of the Garrison Diversion Project in North Dakota. I have appeared before the Energy and Water Development Subcommittee on numerous occasions to discuss Garrison, and I appreciate the past support of this subcommittee for the Garrison project.

Also presenting testimony to the subcommittee are David Sprynczynatyk, North Dakota State Engineer, and Robert Strand, Chairman of the Garrison Diversion Conservancy District. They will detail a budget request of $26.2 million, slightly more than the Administration's $21.6 million request for Garrison. I would like to add my support for our budget request of $26.2 million and urge the subcommittee to favorably consider this funding level. I recognize the budgetary constraints that the subcommittee faces, but our funding request is the minimum requirement to allow adequate progress on this essential water delivery project.

The Garrison Project is necessary to assure the citizens of North Dakota an adequate supply of quality water for municipal, rural and industrial (MR&I) uses. In fact, without adequate funding of this project, many communities in North Dakota may be forced to do without clean and reliable water supplies and existing water supply facilities will deteriorate. The importance of a clean, safe water supply is underscored by the fact that over half of our funding request will go toward MR&I systems throughout North Dakota.

Water development is also essential for economic development, agriculture, recreation and tourism. A portion of this funding will address several Native American municipal water projects and irrigation projects authorized but not yet completed. Also, this funding will provide for necessary fish and wildlife enhancement projects.

This subcommittee is well aware of the history of Garrison Diversion and the unfulfilled promises of the Federal government in this matter. To compensate North Dakota for the loss of 550,000 acres of valuable Missouri River bottomland due to the construction of the Garrison Dam and Oahe Dam, the Garrison Diversion Project was started to provide affordable access to Missouri River Water as a basic element of the State's long-range plans for water management and development. The original goal of the Garrison project has not yet been realized.

Mr. Chairman, North Dakotans are committed to the Garrison Diversion Project. Since we realize the project will never attain its original goals, the relevant interests in North Dakota have discussed plans to reformulate Garrison to more accurately address the contemporary water needs of our State and to relieve the Federal government of its obligations to Garrison. Drastically reducing the Federal appropriations for Garrison will impede this process. Adequate funding of Garrison is essential to achieve our goal of delivering clean, safe water supplies to areas of need across North Dakota.

Mr. Chairman, thank you for the past support of the Energy and Water Development Subcommittee for the Garrison Project, and I hope you will continue to support this important water project in Fiscal Year 1997.

PREPARED STATEMENT OF ROBERT STRAND, CHAIRMAN, GARRISON DIVERSION CONSERVANCY DISTRICT BOARD OF DIRECTORS

Mr. Chairman and Members of the Subcommittee:

I am Robert Strand, Chairman, Garrison Diversion Conservancy District Board of Directors. I am here today to testify on Fiscal Year 1997 appropriations for the Garrison Diversion Project.

Garrison Diversion's annual appropriation over the last five years has averaged over $30 million. Last year we supported a reduced appropriation of $24.9 million because we recognized the need for all parts of the system to cut back and get along with less federal government funding. This year we are still committed to maintaining the reduced levels. Our Fiscal Year 1997 funding request is for $26.2 million.

For years and years we were told that funding requests large enough to accomplish full capability of smaller projects, such as Garrison Diversion, would have to await the funding requests of higher priority programs, such as those in California and Arizona. Those projects are now fully funded and delivering benefits to the citizens of their states and many others across the west.

Over recent years, Garrison funding has also been bringing benefits to the citizens of North Dakota. In particular, are funds for the construction of Municipal, Rural and Industrial (MR&I) water projects across the state. Approximately $110 million has been appropriated for that purpose, and it has been used as judiciously as we know how. The federal government requires a 25% match of nonfederal dollars. In order to make the funds go as far as possible, the state and the Conservancy District have stiffened that requirement to a 35% match.

Nevertheless, the MR&I projects willing to work on that basis continue to grow. We are working on a proposal to provide off budget financing for as many of the project's needs beyond those that can be handled within existing authority. In the meantime, we need to keep the current program going. Nothing would be more discouraging than to see the current program slashed further in return for our willingness to first, stretch federal dollars by asking more of the local people and second, look to other funding sources beyond the current authority. Only a little over $80 million remains in funding authority for this program. A variety of water systems are underway which would eliminate the burden on rural citizens of hauling water for domestic needs and would provide a minimum water supply for dwindling livestock herds. Now they are waiting for word from Washington to see if they will be able to finish what they have started. A majority of the budget request for FY97 ($16 million) is for this MR&I program.

In addition, the federal government has constructed two large pumping plants and over 120 miles of canal across the state. A plan to put those facilities to use and begin the delivery of at least a portion of the envisioned water supplies for other areas is in the works. Until then, it is imperative that those facilities be maintained for future use so that public access and public safety are protected. Approximately $3 million is needed to continue that part of the operation.

Finally, the funding request at long last includes funds for completion of the required mitigation programs associated with the refuges. We are sure that this will provide an excellent setting for our proposal to complete a scaled-down and re-visioned project. We believe this proposal will save the taxpayers money, be environmentally superior and meet the most critical of North Dakota's water needs. We believe that is a legacy you would like to leave, and so would we. Thank you for your past consideration and for your time today.

PREPARED STATEMENT OF THE MISSOURI RIVER BANK STABILIZATION ASSOCIATION

Mr. Chairman and Members of the Sub-Committee:

The membership of the Missouri River Bank Stabilization Association and its officers thanks you for your courtesy in giving us the opportunity to present this testimony with reference to the Fiscal Year Budget for 1997.

We come before you to request funding for the Missouri National Recreation River project, authorized in 1978 under Section 707 of Public Law 95-625. **For FY 97 $200,000.00 is needed for operation and maintenance of structures built prior to 1978** under the Section 32 Streambank Erosion Control and Demonstration Act. In addition, funding is needed for providing additional access to the river, securing shoreline easements so as to increase wildlife habitat, provide bank protection where necessary and such other needs as required to maintain progress toward completion of this project.

Of the $21,000,000.00 authorized expenditure for this project, some $2,000,000.00 has been spent. The project covers the fifty-nine mile segment of the Missouri River flowing from Yankton, South Dakota, to the Ponca, Nebraska, State Park. The Missouri here is still in a relatively natural, or wild, state; it marks the boundary between Nebraska and South Dakota. Above Yankton, South Dakota the Missouri is a *"geologically young"* river as the terrain through which it flows was more recently glaciated than that below Yankton. Occupying a much broader valley below Yankton, the fifty-nine mile reach involved here is the sole *"wild"* segment below the mainstem dams.

The valley occupied by this still-meandering reach of the Missouri is characterized by a highly erodible flood plain. Construction of the mainstem dams has all but eliminated flooding in this reach but inexorable erosion continues. That constant erosion is not offset by the periodic flooding which occurred prior to the construction of the mainstem dams.

The nation will soon be commemorating the bicentennial of the Lewis and Clark Expedition. It is appropriate to note here that this is the only segment of the "geologically old" Missouri the explorers would easily recognize yet today. Here, the still-meandering river is yet characterized by sandbars and snags, bends and beaches, islands, chutes, timbered bluffs, wildlife and a host of other characteristics the Congress intended to preserve by the enactment of the 1978 legislation. It is indeed worthy of preservation.

In conclusion, we would like to reiterate our thanks for the help you have been fit to provide in prior years, and for the concern and consideration of the farmers, outdoorsmen, environmentalists and others constituting the membership of our Association.

LETTER FROM SENATOR STAN SCHELLPEPER, NEBRASKA STATE LEGISLATURE

February 27, 1996

The Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
Senator Committee on Appropriations
Washington, D.C. 20510

Dear Chairman Domenici:

Please accept this letter of strong support with regard to the efforts of the Missouri River Bank Stabilization Association. I have represented this area of the great State of Nebraska since 1992, yet for many more years I have enjoyed and admired this beautiful segment of the Missouri River for which this request is being made.

The portion of the river in question, the 'wild' Missouri, is a wide, braided river which provides bounteous habitat for fish and fowl. The 'wild' Missouri is a fertile, aesthetic gem which provides recreational value as well as being recognized as a state and national treasure. In contrast, an extensive network of dams and other channeling structures, while important in their own respect, have rendered most of the lower river, a swift moving and uninspiring canal. Realizing the damage to the ecology and fertility of the river such measures have caused, efforts have begun to reverse the damage on the lower river by recreating the features that abound on the 'wild' Missouri.

Past efforts of the Association to preserve our river and the wisdom of this subcommittee to fund preservation efforts are to be commended. I would strongly encourage the subcommittee to authorize funding for the continued maintenance of structures previously built. We must insure that our past investment in preserving the river are protected.

Thank you for your consideration.

LETTER FROM SENATOR PAT ENGEL, NEBRASKA STATE LEGISLATURE

February 27, 1996

Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
Senate Appropriations Committee
Washington, D.C 20510

Dear Mr. Chairman:

I am pleased to enter this letter in support of the efforts of the Missouri River Bank Stabilization Association. Before I began representing the 17th District, I enjoyed and admired this beautiful segment of the Missouri River.

The river is an abundant habitat for fish and fowl and is a state and national treasure that encourages people to enjoy the beauty of this region of the country. In contrast, an extensive network of dams and other channelizing structures have rendered most of the lower river, a swift moving and uninspiring canal with damage to the ecology, causing irreversible damage.

Past efforts of the Association to preserve our river and the wisdom of this subcommittee to fund preservation efforts is to be commended. I strongly encourage the subcommittee to authorize funding for the continued maintenance of structures previously built. We must ensure that our past investment in preserving the river are protected.

PREPARED STATEMENT OF THE MNI WICONI PROJECT, SOUTH DAKOTA

1. FY 1997 Budget Request

The Mni Wiconi Project beneficiaries (as listed below) respectfully request fourth year construction funding for the project in the amount of $38,477,000 as follows:

Oglala Sioux Rural Water Supply System	
Core Facilities (Intake, Treatment Plant, Pipelines)	$18,462,000
Distribution System on Pine Ridge	6,580,000
West River/Lyman-Jones Rural Water Systems	6,848,000
Rosebud Sioux Rural Water System	5,819,000
Lower Brule Sioux Rural Water System	768,000
Total Mni Wiconi Project	$38,477,000

The Administration's budget of $28.3 million is a major improvement over last year, demonstrating growing support of the Administration for the Project, but remains inadequate for the Project to be completed on schedule. The Project needs an increase in FY 1997 of $10.2 million above the Administration's proposed budget, an amount less than the $11.8 million added by the House and Senate conference last year.

2. Construction Plans for FY 1997 Funds

The project beneficiaries are capable of continuing significant on-going construction on the distribution systems within the service areas of the project (Figure 1). See Sections 5 through 8.

The Oglala Sioux Rural Water Supply System (OSRWSS) will execute contracts for major construction activities on the core system. Construction contracts will be initiated on the intake and treatment plant this year using FY 1996 funds (Table 1). Construction of the treatment plant will use

$3.0 million in FY 1996 funds and require $8.5 million in FY 1997 and $8.2 million in FY 1998 to complete construction of this $19.7 million component. OSRWSS will use $10.0 million in FY 1997 funds for construction contracts for the large diameter pipelines and related facilities that will connect the treatment plant with the service areas (Table 1). The area proposed for construction is along State Highway 1806 between the treatment plant and Fort Pierre, along U.S. Highway 83 toward Vivian, and west along U. S. Highway 14 toward Hayes (Figure 1).

OSRWSS is completing design of the core project facilities described above with FY 1996 funds. Final plans and specifications for the intake on the Missouri River have been submitted to the Bureau of Reclamation for review, and construction contracts are scheduled to begin in late spring. Site work at the treatment plant is scheduled for the start of construction in summer 1996. The FY 1997 appropriations become crucial to the continued construction of these essential core facilities.

TABLE 1

SCHEDULE AND APPROPRIATIONS FOR PROJECT COMPLETION

			OSRWSS Core Pipelines				OSRWSS	Service	Appropriation
	OSRWSS	OSRWSS					Core	Area	Completion
Year	Intake	Treatment	N Route	to Vivian	to Murdo	to Pine R	Cost	Cost	Schedule
1996	$3,775,104	$3,000,000					$6,775,104	$15,524,896	$22,300,000
1997	0	8,488,000	3,657,320	6,316,693	0	0	18,462,013	20,015,301	38,477,314
1998	0	8,200,000	3,748,753	6,474,611	0	2,216,045	20,639,408	20,515,683	41,155,091
1999	0	0	3,842,471	6,636,476	4,523,739	2,271,446	17,274,132	21,028,575	38,302,707
2000	0	0	3,938,533	0	4,636,832	[illegible],328,232	10,903,597	21,554,290	32,457,887
2001	0	0	4,036,997	0	4,752,753	3,[illegible],438	11,176,187	22,093,147	33,269,334
2002	0	0	4,137,921	0	0	0	4,137,921	22,645,475	26,783,397
2003	0	0	0	0	0	0	0	23,211,612	23,211,612
	$3,775,104	$19,688,000	$23,361,995	$19,427,780	$13,913,324	$9,202,160	$89,368,362	$166,588,979	$255,957,341

Note:The numbers in this table are based on cost indexing of 2.5% annually from 1997 through 2003.

3. Construction Schedule Revision

With the needs of the Mni Wiconi Project in mind, the councils and boards of the Indian and off-reservation service areas have prepared a revised plan for completion of the project by year 2003. The plan was designed to recognize the funding environment in which the subcommittees are working and to seek a level of appropriations that is workable. The Project has seven years to complete the construction of the OSRWSS core system and the distribution systems within the respective service areas. The project participants are committed to working with the subcommittees to ensure that the expectations of the memberships are met.

Figure 1 is a diagram of the core facilities of the Oglala Sioux Rural Water Supply System that will deliver water to the interconnections of West River/Lyman-Jones, Rosebud and Lower Brule. Figure 1 shows the elements of the core system that will be constructed with FY 1997 funds and the ultimate development of the core system. This construction schedule is a significant modification from the schedule presented in the *Final Engineering Report*. Construction of the treatment plant and other core facilities has been moved to later years of the schedule and has been spread out over a longer period of years. Table 1 summarizes.

The construction sequence presented in Figure 1 and Table 1 is intended to respond to the budget constraints of Congress and the Administration. Older projects, such as the Central Arizona Project, have passed their need for the large proportion of the total appropriations they received in the past. Accepting the fact that the over-all budget for Water Development projects is declining, the Mni Wiconi Project can be completed on schedule as our appropriation needs move forward in priority to utilize the share, in part, of the total appropriations previously used by Central Arizona and others.

The construction sequence of the Oglala Sioux Rural Water Supply System (OSRWSS) will interconnect and supply the first major population segment with Missouri River water in 1999: a design population of 5,000 within the Lower Brule and Lyman-Jones systems. By year 2001, OSRWSS will deliver Missouri River water at interconnections designed for a population of 38,000 members, and by year 2002, OSRWSS will deliver water at interconnections designed for a population of 52,000 members, the population projected for all service areas between years 2010 and 2020[1]. The remaining year in the construction schedule (FY 2003) will be dedicated to completing distribution systems within the respective service areas. The Subcommittee's attention is drawn to the fact that the construction schedule permits the residents of the Pine Ridge Indian Reservation, Rosebud Indian Reservation and relatively large populations in the West River/Lyman-Jones service areas to receive Missouri River water from OSRWSS at the same time: year 2002. While this may not seem an important event to the Subcommittee, the project sponsors consider the construction sequence as another historic milestone in the growing cooperation between the tribal membership of the respective Indian reservations and the off-reservation population.

4. Unique Needs of This Project

We respectfully submit that our project is unique and that no other project in the Nation has greater needs. Poverty in our service areas is consistently deeper than elsewhere in the Nation. Health effects of water borne diseases are consistently more prevalent than elsewhere in the Nation, due in part to (1) lack of adequate water in the home and (2) poor water quality where water is available. Higher incidences of impetigo, gastroenteritis, shigellosis, scabies and hepatitis-A are well documented on the Indian reservations of the Mni Wiconi Project area. It is incomprehensible at the close of the 20th century to have a region in which social and economic conditions are as devastating. These circumstances are summarized in Table 2. Mni Wiconi raises the hopes and builds the dignity of many, not only though improvement of drinking water, but through employment and increased earnings during planning, construction, operation and maintenance.

TABLE 2

1990 BUREAU OF CENSUS ECONOMIC STATISTICS

Indian Reservation/State	Per Capita Income ($)	Families Below Poverty Level (%)	Unemployment (%)
Pine Ridge (Shannon County)	$3,029	59.6	32.7
Rosebud (Todd County)	4,005	54.4	27.3
Lower Brule (Lyman County)	4,679	45.0	15.7
State of South Dakota	10,661	11.6	4.2
National	14,420	10.0	6.3

5. Oglala Sioux Rural Water Supply System within Pine Ridge Indian Reservation

Table 3 summarizes the status of the Oglala Sioux distribution system on the Pine Ridge Indian Reservation. A total of 450 rural residences have facilities constructed to serve them. The pipelines now delivering water involve 114.6 miles of pipe greater than 3 inches in diameter and 74.2 miles of pipeline less than 3 inches in diameter, a total of 188.8 miles of pipeline. With projects now designed and proceeding toward construction award, there are 1,130 services and 405.5 miles of distribution and service pipelines. These projects will be started in FY 1996 and will require FY 1997 appropriations for completion.

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[1] Not all of the design population will be fully dependent on Missouri River water supply provided by OSRWSS. About 50% of the water supply for the Pine Ridge Indian Reservation will be provided by groundwater, about 38% of the water supply for the Rosebud Indian Reservation will be derived from groundwater, and a small proportion of the West River service area will be supplied from groundwater. The OSRWSS core intake, treatment plant and pipelines are needed to supply the remaining demand for water and to back up the groundwater supply.

TABLE 3
PROGRESS ON OSRWSS DISTRIBUTION SYSTEM

OSRWSS Project	Status	Residential Connections (number)	Larger Pipeline > 3" (miles)	Smaller Pipeline < 3" (miles)
White Clay/Wakpamni	Operating	187	38.8	26.1
Slim Buttes	Operating	76	27.5	14.9
Kyle North	Operating	77	15.2	13.1
Kyle to Sharpe Corner	Operating	107	26.6	17.1
West Boundary	Operating	3	6.5	3.0
Manderson Loop	Construct Start FY 96	509	70.7	74.7
Kyle to Allen	Construct Start FY 96	171	51.5	19.8
Totals		1,130	236.8	168.7

6. West River/Lyman-Jones Rural Water System

Construction of the WR/LJ systems was initiated in October of 1993. To date, as shown in Table 4, WR/LJ has completed construction of distribution mainline to serve 344 rural locations. Because of the urgent need for water, the WR/LJ Board has entered into interim water supply agreements with municipalities within their service area. With completion of the OSRWSS core system pipeline, these communities will become recipients of project water that meets Safe Drinking Water Act Standards, and the water supplied to rural users will be of much superior quality to that presently being supplied. With projects now under construction and those in final design, there will be a total of 687 connections served by 1,313 miles of pipeline. The Grindstone South project will be completed with FY 1996 funds appropriated last year. The projects now in final design will be made possible by funds in this request for FY 1997.

TABLE 4
PROGRESS ON WR/LJ DISTRIBUTION SYSTEM

WR/LJ Project	Status	Residential Connections (number)	Larger Pipeline > 1.5" (miles)	Smaller Pipeline < 1.5" (miles)
Creighton	Operating	89	179.0	8.0
Elbon	Operating	136	274.0	13.0
Kadoka	Operating	119	262.0	11.0
Grindstone South	Construction	73	128.0	7.0
Reliance North	Design	60	110.0	6.0
Reliance South	Design	115	210.0	11.0
Pierre to Vivian Core Branches	Design	95	150.0	9.0
Totals		687	1,313.0	65.0

7. Rosebud Sioux Rural Water System

Construction is scheduled to begin this summer on the Rosebud Sioux Rural Water System. The initial 40 miles of pipeline will bring high quality water and improved fire protection to the 375 people who live in the communities of He Dog and Upper Cut Meat and surrounding rural areas. The design, right-of-way and cultural resources work are being done in FY 1996 for the Ring Thunder/Horse Creek/Mission and Parmalee/Black Pipe/Corn Creek components. A construction contract is scheduled for award on the Ring Thunder/Mission project later this summer. The 65 miles of pipeline to be constructed in FY 1997 would serve several hundred homes that currently have either marginal water supply (very poor quality and inadequate quantity) or no water at all. Design and right-of-way work would also be done in FY 1997 for FY 1998 construction projects. The Tribe has made major accomplishments in FY 1995 and 1996, and the Rosebud people are anxiously looking forward to the benefits that the Mni Wiconi Project can provide.

8. Lower Brule Rural Water System

The Lower Brule Rural Water System status is, at the present time, in the study and design stage. The Needs Assessment and Water Conservation Plan are being completed. These are prerequisites to release of construction funds. An analysis of existing facilities is being performed to determine compatability with proposed project facilities. Preliminary design work and design report is currently in early stages, with construction of new facilities programmed to begin in fiscal 1997. Currently the system has accepted ownership of and authority for operation and maintenance of the Lower Brule and West Brule Community water distribution systems, which were programmed to that purpose in the *Final Engineering Report*. Fiscal Year 1997 funds will also be for some needed improvements to those systems and to begin Phase 1 construction of new facilities. Phase 1 will begin with the core system pipeline from Lower Brule Community toward the Medicine Butte area south of the Community.

9. Closing

In our testimony above, we described the uniqueness of this project in meeting basic human needs in the midst of poverty. We close by asking the Subcommittee to consider additional factors:

- FY 1997 is the fourth year of construction. At the conclusion of FY 1996, we are on schedule for completion in FY 2003;

- We are on schedule with design of FY 1997 facilities and need the FY 1997 funds to continue construction contracts and initiate new ones;

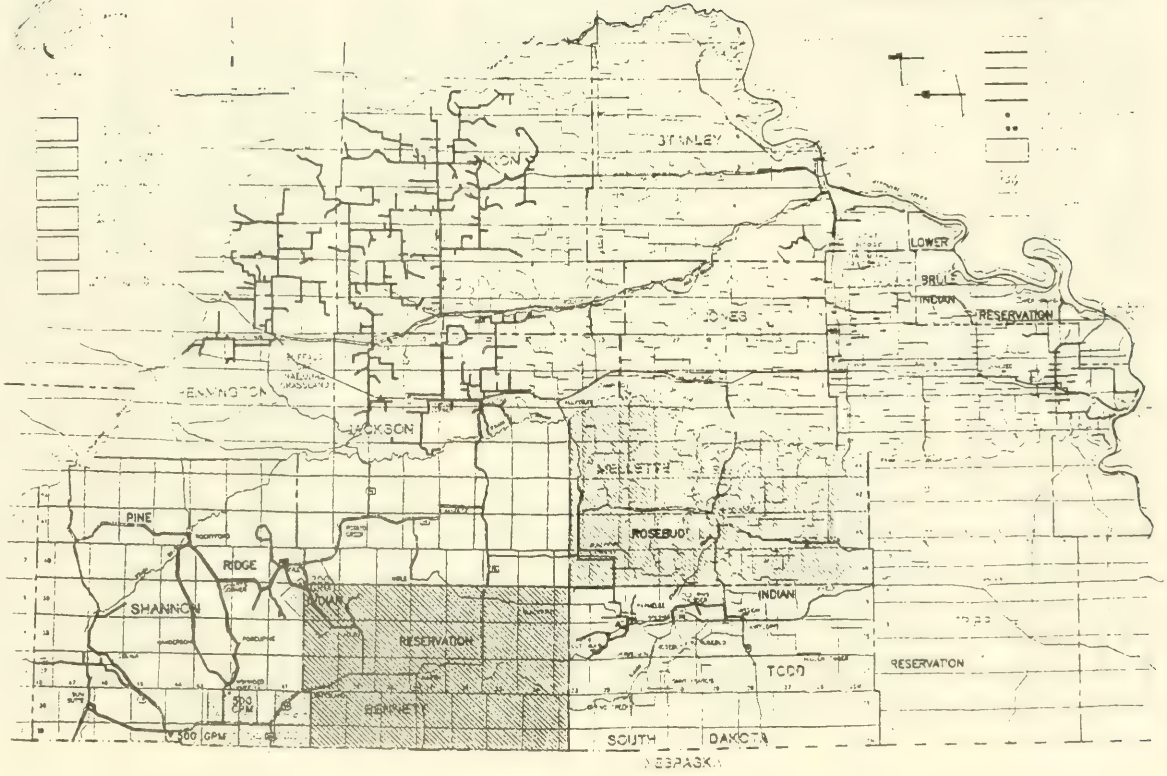
- The following finding of Congress in Public Law 100-516, as amended, places the Nation on the strongest of moral grounds in this project:

  > *...the United States has a trust responsibility to ensure that adequate and safe water supplies are available to meet the economic, environmental, water supply and public health needs of the Pine Ridge, Rosebud and Lower Brule Indian Reservations...*

FIGURE 1

STATUS OF CONSTRUCTION – FY96 & FY97

MNI WICONI RURAL WATER SUPPLY PROJECT



PREPARED STATEMENT OF KURT PFEIFLE ON BEHALF OF THE MID-DAKOTA RURAL WATER SYSTEM

1. **FY 1997 FUNDING REQUEST:**

Chairman Domenici, Ranking Minority Member Johnston, distinguished committee members. The Mid-Dakota Rural Water System respectfully requests fourth year construction funding for the Project in the amount of $~~29.367~~ 29.686 million as follows:

CASH FLOW REQUIREMENTS FY 1997:

Project Feature	Contract Number	Cost ($1,000)	FY 1997
Oahe Water Treatment Plant	2-1	10,115	105
Main Pipeline to Blunt, SD	3-1B	7,823	6,073
Main Pipeline to Highmore WST	3-1C	5,439	4,189
Canning Distribution Sys	4-1A	7,335	6,234
Okabojo Distribution Sys	"	"	"
Highmore West Distribution Sys.	"	"	"
Onida Distribution Sys.	"	"	"
Agar Distribution Sys	4-1B	7,040	5,984
Gettysburg Distribution Sys.	"	"	"
Highmore Tower	5-1	1,400	1,100
Onida Tower	5-2	423	423
Okabojo Tank	"	108	108
Agar Tower	5-3	353	353
Gettysburg Tank	"	668	668
Control System	4-1A&B		178
O & M Center & Equipment			106
Town System Improvements	4-1A&B		150
Subtotal Construction RWS			25,671
Other Cost RWS			4,000
Total Project Costs RWS			29,671
Federal Appropriations RWS			29,671
Non-Federal RWS			0
Wetland Component			(1) 15
Total Federal Appropriation			**29,686**

The State of South Dakota has again demonstrated its strong support for the Mid-Dakota project. The Legislature appropriated another $1.0 million to the Project in this legislative session Bringing the total appropriated by the State to over $7 million.

2. **RECAP OF PREVIOUS FUNDING:**

The Mid-Dakota project was authorized in October 1992, under Public Law (PL) 102-575. The financial package authorized for the Rural Water System component included an $85 million grant, and a $15 million loan (The loan bears interest equal to the government's cost of borrowing.) The State of South Dakota has also committed $8.4 million in grants as their contribution to the project. Please note that over 21 percent of the project will be funded through sources other than federal grants and all Operation and Maintenance costs will be paid by the water users. Operation and Maintenance costs of the Wetland Componant will be paid using an annual appropriation from the federal government in cooperation with the U.S. Fish and Wildlife Service.

In fact, an agreement for repayment of loan funds to the federal government endorsed by Mid-Dakota and the U.S. Bureau of Reclamation would provide for repayment of federal funds at or above the 15 percent level currently authorized by the federal government.

Mid-Dakota wishes to thank this committee for its support over the past three years. In FY 1994, Mid-Dakota received $2.0 million in federal funding, which was subsequently reduced to $1.5 million through underfinancing. In FY 1995, we received a $4.0 million appropriation. The amount was reduced through underfinancing, to $3.6 million. In FY 1996, we received an $11.5 million appropriation. Again, this amount was reduced through underfinancing, to $10 902 million. However with these monies and funds appropriated by the State of South Dakota, we have been able to make a substantial start on project construction:

HISTORICAL AND CURRENT FISCAL YEAR CASH FLOWS:

Project Feature	Contract Number	Cost ($1,000)	FY 93 & before	FY 94	FY 95	FY 96
Oahe Intake & Pump Station	1-1	3,883	0	168	2,397	1,318
Oahe Water Treatment Plant	2-1	10,110	0	0	3,846	6,164
Raw Water Pipeline	3-1A	1,550	0	0	558	992
Main Pipeline to Blunt, SD	3-1B	7,741	0	0	0	1,750
Main Pipeline to Highmore WST	3-1C	5,468	0	0	0	1,250

Project Feature	Contract Number	Cost ($1,000)	FY 93 & before	FY 94	FY 95	FY 96
Canning Distribution Sys.	4-1A	7,702	0	0	0	0
Okabojo Distribution Sys.	"	"	"	"	"	"
Highmore West Distribution Sys.	"	"	"	"	"	"
Onida Distribution Sys.	"	"	"	"	"	"
Agar Distribution Sys.	4-1B	7,392	0	0	0	0
Gettysburg Distribution Sys.	"	"	"	"	"	"
Highmore Tower	5-1	1,400	0	0	0	300
Onida Tower	5-2	423	0	0	0	0
Okabojo Tank	"	250	0	0	0	0
Agar Tower	5-3	353	0	0	0	0
Gettysburg Tank	"	668	0	0	0	0
Control System	4-1A&B		0	0	0	0
O & M Center & Equipment			0	25	32	21
Town System Improvements	4-1A&B		0	0	0	0
Subtotal Construction RWS			0	193	6,833	11,795
Other Cost RWS			1,814	1,608	1,180	2,098
Total Project Costs RWS			1,814	1,801	8,013	13,893
Federal Appropriations RWS			0	1,500	3,500	10,770
Non-Federal RWS			1,814	301	4,513	3,123
Wetland Component			0	0	100	132
Total Federal Appropriation			0	1,500	3,600	10,902

FY 1996 was the first year in which Mid-Dakota received the administration's budget support. It is our understanding that the administration, through the U.S. Bureau of Reclamation continues its support for the construction of the Mid-Dakota project.

To date the State of South Dakota has provided $6 37 million towards the development of the Mid-Dakota project (not including $1 0 million appropriated this legislative session). This total includes $100,000 in 1988, $50,000 in 1989, 75,000 in 1990, 145,000 in 1991, $1.5 million in 1992, $2.5 million in 1993, $1.0 million in 1994 and $1.0 million in 1995 (actual appropriations do not necessarily correspond to amount expended in a particular fiscal year) The state funds, combined with local funds and user fees, were used to complete planning, environmental and engineering work to the point that in-the-ground project construction could commence the very first year of federal appropriation (FY 1994).

3. PROGRESS AND NEED FOR FY 1997 FUNDING:

Elements of the Mid-Dakota project have been built (or are being built) utilizing federal and state funding sources in anticipation of water deliveries beginning in calendar year 1997. Contracts that are under construction or will be awarded this fiscal year, in order of priority are as follows:

❶ **Contract 1-1: Oahe Intake and Pump Station.** Construction is currently underway. This contract was awarded in August, 1994 to Industrial Builders, Inc., of Fargo, N.D., for a bid price of $3.958 million. The contract is more than 86 percent complete and on schedule for an April 1996, completion. The Oahe Intake and Pump Station when complete will draw raw water from the Missouri River and pump the water to the Water Treatment Plant for processing.

❷ **Contract 3-1A: Raw Water Pipeline.** Construction is currently underway. This contract was awarded in June 1995 to Larry's Inc., of Gillette, WY, for a bid price of $1.737 million. The contract is more than 96 percent complete and is anticipated to be finished in the near future. This contract consists of approximately four miles of 30" diameter ductile iron pipe and roughly the same distance of various sizes of PVC (plastic) pipe. Nearly one and one half miles of 12" PVC pipe was put in place for raw water deliveries to the Hyde Waterfowl Production Area (part of the Mid-Dakota Wetland Enhancement Component).

Contracts 1-1 and 3-1A are scheduled to be complete in the current federal fiscal year and do not require additional funding from federal or state sources.

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❸ **Contract 2-1: Oahe Water Treatment Plant:** Construction is currently underway. This contract was awarded October 1994 to John T. Jones Construction Co., Fargo, N.D., for a bid price of $9.920 million. This contract is over 63 percent complete and on schedule for a September 1996, completion (except for work which cannot be completed untill other contracts are in place). An additional $105,000 is requested for construction purposes in FY 1997.

❹ **Contract 3-1B: Treated Water Main Pipeline:** Bid opening is scheduled for March 14, 1996 for this contract. Mid-Dakota has budgeted $7.823 million for the construction of this section of main pipeline. We anticipate contractor earnings of 1.75 million in FY 1996. The Project will require an appropriation of **$6.073 million** in FY 1997 to complete the contract.

❺ **Contract 3-1C: Treated Water Main Pipeline:** Bid opening is scheduled for March 14, 1996 for this contract. Mid-Dakota has budgeted $5.439 million for the construction of this section of main pipeline. We anticipate contractor earnings of 1.25 million in FY 1996. The Project will require an appropriation of **$4.189 million** in FY 1997 to complete the contract.

❻ **Contract 5-1: Highmore Water Storage Tank:** Bid opening is scheduled for March 1996, for this contract. Mid-Dakota has budgeted $1.4 million for the construction of this contract. We anticipate contractor earnings of $300,000 in FY 1996. The Project will require an appropriation of **$1.1 million** in FY 1997 to complete the contract.

Funding for contracts 2-1, 3-1B, 3-1C & 5-1 is absolutely necessary in order to continue and complete contracts awarded or otherwise under construction in FY 1996. $13.5 million is required to complete the contracts in FY 1997 (including administration, engineering, inspection, contingencies etc.) and keep the Project out of a default situation. Completion of contracts 3-1B, 3-1C and 5-1 are critical in order to perform tests of the water treatment equipment, surge control system and high service pumps so that Contract 2-1 can progress toward close out. Completion of these contracts only, will not provide for the delivery of water to any users.

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❼ **Contracts 4-1A & 5-2: Canning, Okobojo, Highmore West and Onida Service Areas (4-1A) and Okobojo and Onida water storage tanks (5-2):** Bid opening is scheduled for August 1996 Mid-Dakota has budgeted $7.335 million for the construction of contract 4-1A and $531,000 for contract 5-2. We anticipate contractor earnings of **$6.234 million** for contract 4-1A and $531,000 for contract 5-2 in FY 1997.

Funding for contracts 4-1A and 5-2 is crucial. With construction of contracts 1-1, 2-1, 3-1A, 3-1B, 3-1C and 5-1 Mid-Dakota will have a hydraulically operable portion of the project complete but with nowhere to deliver water produced. Funding for contracts 4-1A and 5-2 provides for "critical mass" needed to provide enough users to allow the start up of our water treatment plant. $21.750 million is required for completion of contracts 2-1, 3-1B, 3-1C, 5-1 and 5-2 and for adequate progress on contract 4-1A (including administration, engineering, inspection etc.). Water Treatement Plant start up and operator training need to be completed for contract close out. If we can not start up and operate the water treatment plant, what is left of our equipment warranties will run out before we get the bugs worked out. We will also be incurring utility and insurance expenses on the plant. Although adequate, this level of funding is not enough to overcome the lag in construction progress created by three prior years of insufficient funding.

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❽ **Contract 4-1B & 5-3: Agar and Gettysburg Service Areas (4-1B) and water storage tanks (5-3).** Bid opening is scheduled for August 1996. Mid-Dakota has budgeted $ 7.040 million for the construction of contract 4-1B and $1.021 million for contract 5-3. We anticipate contractor earnings of **$5.984 million** for contract 4-1B and **$1.021 million** for contract 5-3 in FY 1997.

❾ **Other FY 1997 Construction and Project Costs.** Mid-Dakota is requesting an additional $4.0 million in Other Project Costs. Other Project Costs include but are not necessarily limited to; Engineering, Inspection, Legal, Administration, U.S. Bureau of Reclamation oversight, and contingencies. Additionally $434,000 is requested for expenditures anticipated for the O & M Center & Equipment, Town system improvements and the Control system. It is anticipated that a significant portion of the contingency budget will be spent hooking up additional users who have not yet contracted for water. Experience on other rural water systems has shown that once an actual bid date for construction of a given service area is announced, additional users will contract for service. Finally, **$15,000** is requested for operating costs of the Hyde WPA.

With the construction of contracts 4-1B and 5-3, in addition to preceding contracts, Mid-Dakota would be in the position to begin water service to eight rural communities, 856 individual rural connections serving a population of approximately 5,712 and approximately 44,000 livestock units (Hogs, sheep, cows). Of course the more users we can connect on to the System the greater the chance of operating the System (water treatment and delivery) in the black. $29.686 million is required for completion of contracts 2-1, 3-1B, 3-1C, 5-1, 5-2 and 5-3 and for adequate progress on contract 4-1A and 4-1B (including administration, engineering, inspection etc.)

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4. ADDITIONAL FACTORS FOR CONSIDERATION:

- Mid-Dakota has completed all pre-construction requirements
- We continue to seek and acquire easements and sites for project facilities. It is important to note that easements are being obtained from private land owners without charge.
- Mid-Dakota Rural Water is considered a high-priority project by the South Dakota Department of Environment & Natural Resources and is listed in the late Governor Mickelson's Water Initiative in the "Short-term" category.
- Mid-Dakota continues to receive strong support and a high- ranking priority in Governor Janklow's Administration.

- A unique provision included with Mid-Dakota's authorization is a Wetland Development and Enhancement Component. In conjunction with various federal, state and local agencies, the Mid-Dakota sponsors put together a proposal that will enhance, restore, create and maintain wetland areas. The use of both treated and untreated Missouri River water is envisioned to enhance existing wetland acres Land acquisition adjacent to existing wetlands and development of constructed wetlands using waste water are also authorized. Facilities for delivery of water to the Hyde Waterfowl Production Area are nearing completion will be operable in time for the 1997 and possibly 1996 brood rearing season(s). $15,000 is requested for Operating costs of the Hyde WPA pursuant to P.L. 102-575.

- The Mid-Dakota Rural Water System represents a contemporary water project designed to alleviate a regional water supply problem. The project has been developed due to the cooperation of a diverse group of interests that include, but are not limited to the local residents, state and federal officials, water interests, public power interests and wildlife groups. All these groups may seem to have different interests, but to survive in rural American in the 90's, we must learn to compromise a little and recognize and accommodate the other person's needs. This can be seen in the agreement that was reached between Mid-West Electric Consumers Coop., and the Mid-Dakota project. Under the agreement, the project will utilize Pick-Sloan pumping power for six months of the year.

5. CLOSING:

In conclusion, we ask this committee to continue its strong support of the Mid-Dakota rural Water System We understand and approve of the constraints being placed on federal spending, with a view toward balancing the budget. However, with project construction underway, it is vital that we receive a level of funding which will allow us to honor contracts in progress and provide sufficient user connections to allow start up of our water treatment plant. Insufficient federal funding may lead to default on one or more of these contracts and further delay water deliveries The result would be loss of jobs and contractor remobilization at a later date, which would be expensive for us and for the U.S. Government.

May we also point out that Mid-Dakota is a national project in every sense of the word. Our state is blessed with many things; however, industrial resources are not one of them. Conservatively, over 60% of the project funds will be spent out of State. Ductile iron and steel pipe, meters, valves and PVC pipe and resin are being purchased from states like Alabama, Indiana, Texas and Louisiana. We have contractors from North Dakota, and Wyoming as well as Subcontractors from the state of Washington, Wisconsin and Kansas; I could go on. The point is, Mid-Dakota will have a ripple effect which will be felt nationwide.

Mid-Dakota has entered into a unique partnership with the federal government. The private sector is planning and constructing this project, with oversight from the USBR. This partnership has worked very well, as has been demonstrated in that, so far, construction underway is progressing a little ahead of schedule and a little under budget. The value of this kind of partnership has also been demonstrated with the completion of the highly successful WEB Water Project, which is operating without federal assistance and is repaying its federal construction loan on schedule, since its completion in 1991.

Now that construction is well under way, it is important to the people we will eventually serve, and we hope its is equally as important to Congress, that Mid-Dakota be in a position to deliver water as quickly as possible. This would be the most efficient use of the federal and state monies which have already been committed.

Please help us deliver that water soon, by approving the full ~~$29.367~~ million appropriation we are seeking for FY 1997. Thank you very much 29.684

TEXAS WATER RESOURCE PROJECTS

PREPARED STATEMENT OF PRESTON M. GEREN, JR., CHAIRMAN, TRINITY IMPROVEMENT ASSOCIATION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS PRESTON GEREN OF FORT WORTH, TEXAS, AND I AM CHAIRMAN OF THE TRINITY IMPROVEMENT ASSOCIATION. I HAVE BEEN ASKED TO SERVE AS SPOKESMAN FOR THIS DELEGATION WHICH REPRESENTS INTERESTS THROUGHOUT THE TRINITY RIVER BASIN AND THE CITY OF HOUSTON, OUTSIDE THE BASIN BUT RECEIVING WATER FROM IT.

THE DELEGATES HAVE TRAVELED TO WASHINGTON AT THEIR OWN EXPENSE, WITH THE TRINITY IMPROVEMENT ASSOCIATION SERVING AS COORDINATOR. WHILE THE GROUP IS DIVERSE GEOGRAPHICALLY, WE ARE UNITED IN PURPOSE.

YOU HAVE HEARD TESTIMONY FROM OUR CONGRESSIONAL REPRESENTATIVES CONCERNING SOME OF OUR NEEDS. WE WANT NOW TO PRESENT SPECIFIC COMMENTS AND RECOMMENDATIONS ON THE FY 1997 BUDGET PROPOSALS.

IN REGARD TO THE BUDGET FOR CIVIL WORKS FOR THE CORPS OF ENGINEERS, WE ARE TESTIFYING THIS YEAR WITHOUT THE BENEFIT OF KNOWING DETAILS OF THE ADMINISTRATION'S REQUEST. HOWEVER, WE CONTINUE TO BELIEVE WATER IS ONE OF OUR NATION'S MOST VALUABLE RESOURCES. WATER PROJECTS CREATE THE INFRASTRUCTURE UPON WHICH OUR QUALITY OF LIFE AND ECONOMIC GROWTH DEPEND. OUR NATION CANNOT SURVIVE WITHOUT WATER, AND ECONOMIC PROSPERITY CANNOT OCCUR WITHOUT A PLENTIFUL SUPPLY. IMPROVING WATER QUALITY AND PROVIDING FLOOD CONTROL ARE ALSO INFRASTRUCTURE PROJECTS WHICH SHOULD HAVE A HIGH PRIORITY FOR FEDERAL FUNDING.

WE SUPPORT FUNDING OF PROJECTS IN THE TRINITY RIVER BASIN AT THE LEVELS OF CAPABILITY EXPRESSED BY THE U.S. ARMY CORPS OF ENGINEER'S FOR FY 1997. WE ALSO URGE THIS COMMITTEE TO PROVIDE THE LEADERSHIP NECESSARY TO REVISE THE COST SHARING RULES OF THE CURRENT CIVIL WORKS PROGRAM SO AS TO REALISTICALLY EVALUATE THE BENEFITS ALONG WITH EACH LOCAL SPONSOR'S "ABILITY TO PAY".

FINALLY, MR. CHAIRMAN, I WISH TO POINT OUR FOR THE RECORD THAT A COMPLETE LIST OF OUR DELEGATION APPEARING HERE TODAY, AND

COPIES OF THE TESTIMONY TO BE GIVEN BY OUR GROUP, IS SUBMITTED TO THE COMMITTEE.

WITH THESE REMARKS, I WOULD LIKE TO CALL ON A FEW MEMBERS OF THE DELEGATION WHO WILL SPEAK BRIEFLY ON PROJECTS OF SPECIFIC CONCERN TO THEIR AREAS.

MR. CHAIRMAN, ON BEHALF OF THE WHOLE DELEGATION, PLEASE ACCEPT OUR APPRECIATION FOR THE EXCELLENT JOB YOU AND YOUR COMMITTEE HAVE DONE, IN THESE DIFFICULT TIMES, IN SUSTAINING SOUND WATER RESOURCE DEVELOPMENT PROGRAMS THAT HAVE PROVED THEIR ENVIRONMENTAL AND ECONOMIC WORTH. THANK YOU FOR ALLOWING US TO APPEAR BEFORE THIS COMMITTEE. AS WE STATED LAST YEAR, WE STAND READY TO BEAR OUR FAIR SHARE OF THE BURDEN. WE ASK ONLY THAT THE RETURN ON INVESTMENTS TO THE NATION'S ECONOMY AND THE SOUNDNESS OF FEDERAL PARTICIPATION IN TRINITY RIVER BASIN WATER RESOURCES DEVELOPMENT BE TAKEN INTO CONSIDERATION IN ARRIVING AT YOUR DECISIONS.

AS ALWAYS, IT HAS BEEN A PLEASURE TO APPEAR BEFORE YOU.

PREPARED STATEMENT OF DAVID JENKINS, PRESIDENT, TRINITY RIVER AUTHORITY OF TEXAS BOARD OF DIRECTORS

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS DAVID JENKINS, AND I SERVE AS PRESIDENT OF THE TRINITY RIVER **AUTHORITY OF TEXAS BOARD OF DIRECTORS.**

TRA SUPPORTS THE LEVEL OF CAPABILITY EXPRESSED BY THE U.S. ARMY CORPS OF ENGINEERS FOR PROJECTS LOCATED IN THE TRINITY RIVER BASIN

WALLISVILLE SALTWATER PROJECT

CONSTRUCTION ON THE WALLISVILLE PROJECT RESUMED IN 1991, AND WITH THE FY 1996 $5 MILLION APPROPRIATED BY THIS COMMITTEE, THE CORPS OF ENGINEERS WAS ABLE TO AWARD THE LAST MAJOR CONSTRUCTION CONTRACT IN DECEMBER 1995. AS ONE OF THREE LOCAL SPONSORS, THE TRINITY RIVER AUTHORITY URGES THIS COMMITTEE TO FUND THE CORPS' SPENDING CAPABILITY FOR FY 1997 WHICH IS ESTIMATED TO BE $13 MILLION TO $15 MILLION. WE WOULD ALSO ASK THE COMMITTEE TO CONSIDER APPROPRIATING THE REMAINING FUNDS NECESSARY TO COMPLETE THE PROJECT TO ENSURE THE PROJECT'S COMPLETION IN 1998.

THE WALLISVILLE PROJECT WILL PROVIDE PROTECTION FROM SALTWATER INTRUSION FOR THE RICE INDUSTRY IN LIBERTY AND CHAMBERS COUNTIES. WITH THE COMPLETION OF WALLISVILLE, TRA AND THE CITY OF HOUSTON WILL ALSO BE ABLE TO COMPLETE A LONG-TERM WATER PROJECT THAT WILL BENEFIT THE CITIZENS OF THE LOWER TRINITY RIVER BASIN AND THE GREATER HOUSTON AREA.

WHEN THE CITY OF HOUSTON AND TRA CONTRACTED TO CONSTRUCT LAKE LIVINGSTON AND WALLISVILLE IN 1964, THE INTENT WAS FOR THE TWO PROJECTS TO OPERATE AS INTEGRAL UNITS OF A SYSTEM OPERATION FOR THE PURPOSE OF MAXIMUM WATER YIELD FOR THE LOWER TRINITY AND THE CITY OF HOUSTON. TRA AND HOUSTON HAVE EXPENDED OVER $200 MILLION TO COMPLETE THEIR PART, AND WE ALSO REMAIN COMMITTED TO FULFILLING OUR OBLIGATION UNDER THE TERMS OF THE LOCAL SPONSORS' CONTRACT EXECUTED IN 1968.

UPPER TRINITY RIVER BASIN

FLOODING AND FLOOD CONTROL HAVE RE-EMERGED AS MAJOR CONCERNS IN THE DALLAS/FORT WORTH METROPOLITAN AREA. NINE CITIES, THREE COUNTIES, TRA AND ONE OTHER SPECIAL PURPOSE DISTRICT ARE PARTICIPATING IN A FEASIBILITY STUDY WITH THE CORPS OF ENGINEERS TO ASSESS AN ARRAY OF OPTIONS RELATED TO FLOODING ISSUES.

TRA SUPPORTS THE FUNDING FOR THIS NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS SPONSORED UPPER TRINITY RIVER PROJECT AND FUNDING FOR THE DALLAS FLOODWAY EXTENSION PROJECT WHICH IS SPONSORED BY THE CITY OF DALLAS.

OPERATIONS AND MAINTENANCE FUNDS

TRA SUPPORTS APPROPRIATIONS FOR FY 1997 OPERATIONS AND MAINTENANCE FUNDS NECESSARY TO MAINTAIN OPERATIONS FOR FEDERAL WATER PROJECTS WITHIN THE TRINITY RIVER BASIN. THESE PROJECTS INCLUDE BARDWELL LAKE, NAVARRO MILLS LAKE, JOE POOL LAKE, WALLISVILLE SALTWATER PROJECT, AND THE TRINITY RIVER AND TRIBUTARIESMAINTENANCE DREDGING IN CHAMBERS AND LIBERTY COUNTIES

CONCLUSION

THE TRINITY RIVER AUTHORITY OF TEXAS THANKS THIS COMMITTEE FOR THE OPPORTUNITY TO TESTIFY AND FOR IMPROVEMENTS THAT THE FEDERAL GOVERNMENT HAS FUNDED WITHIN OUR WATERSHED OVER THE YEARS. FEDERAL APPROPRIATIONS FOR WATER PROJECTS IN THE TRINITY RIVER BASIN REMAIN ONE OF THE BEST INVESTMENTS EVER MADE.

THANK YOU.

PREPARED STATEMENT OF GARY SKAGGS, CHAIRMAN, TRINITY RIVER STEERING COMMITTEE, NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

I AM GARY SKAGGS, CHAIRMAN OF THE TRINITY RIVER STEERING COMMITTEE AT THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS. ON BEHALF OF THE 9 CITIES, 3 COUNTIES, AND 2 SPECIAL DISTRICTS PARTICIPATING IN THE UPPER TRINITY RIVER FEASIBILITY STUDY, THE NATION'S LARGEST COST-SHARED INTERJURISDICTIONAL STUDY, I THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE COMMITTEE DURING YOUR DELIBERATIONS ON THE FY97 FEDERAL APPROPRIATIONS. WE APPRECIATE THE LONG-TERM FEDERAL COMMITMENT DEMONSTRATED IN THE U.S. ARMY CORPS OF ENGINEERS' (USACE) **UPPER TRINITY RIVER FEASIBILITY STUDY (UTRFS)** APPROPRIATIONS SINCE 1990.

THE TRINITY RIVER IS THE COMMON THREAD CONNECTING OVER 4 MILLIONS RESIDENTS OF THE NATION'S LARGEST INLAND METROPOLITAN AREA AND IT REMAINS THE SINGLE MOST IMPORTANT RESOURCE TO THE NORTH CENTRAL TEXAS AREA. AS THE LOCAL GOVERNMENT'S REPRESENTATIVE, I AM PLEASED TO REPORT THAT THE LOCAL GOVERNMENT OFFICIALS ARE EAGER TO MOVE INTO THE NEXT CRITICAL PHASE OF THE FEASIBILITY STUDY RESULTING IN IMPLEMENTABLE PROJECTS. AS WE ENTER THIS STAGE, I WOULD LIKE TO HIGHLIGHT THE ACHIEVEMENTS OF THE STUDY FOR YOU AND OUTLINE THE REMAINING EFFORTS TO BE UNDERTAKEN WITH THIS IMPORTANT REGIONAL PROGRAM.

I. THE UPPER TRINITY RIVER FEASIBILITY STUDY HAS PROJECTED THAT A MODEL STORM WOULD CAUSE OVER 22,000 HOME AND OVER 141 MILLION SQUARE FEET OF COMMERCIAL/INDUSTRIAL PROPERTY TO BE FLOODED, WITH UNTOLD LOSS OF LIFE. THIS PAINTS A GRAPHIC PICTURE OF THE POTENTIAL CATASTROPHIC LOSSES TO FLOODING I THE DALLAS-FORT WORTH METROPLEX. THE DETAILED FLOOD ANALYSES FOR THE STANDARD PROJECT FLOOD (SPF) HAVE VALIDATED PREVIOUS PREDICTIONS OF FLOODING SEVERITY IN THE UPPER TRINITY RIVER BASIN.

THE FEASIBILITY STUDY HAS DEVELOPED MANY SOPHISTICATED COMPUTER MODELING TOOLS BASED ON NEW DETAILED TOPOGRAPHICAL AND TOPOLOGICAL MAPPING THAT NOW PROVIDE UNIQUE CAPABILITIES IN ANALYZING THE FLOODPLAIN. IN ADDITION, OUR COOPERATIVE EFFORT HAS RESULTED IN THE IMPLEMENTATION OF A UNIFORM SET OF FLOODPLAIN DEVELOPMENT CRITERIA BY THE LOCAL GOVERNMENTS ALONG THE TRINITY RIVER IN THE METROPLEX. THIS UNIFORM CRITERIA, KNOW AS THE **CORRIDOR DEVELOPMENT CERTIFICATE (CDC)** PROCESS, IS DESIGNED TO STABILIZE THE EXISTING

LEVEL OF FLOOD RISK OF THE TRINITY RIVER THROUGH INNOVATIVE TECHNIQUES AND TECHNICAL CRITERIA. THE MOST UNIQUE FEATURE OF THE CDC PROCESS IS A PEER PRESSURE SYSTEM OF REGIONAL REVIEW AND COMMENT. GIVEN THE MAGNITUDE OF POTENTIAL FLOOD DAMAGES AND THE SIGNIFICANT PROGRESS ALREADY BEING MADE TOWARDS SOLUTIONS, WE ARE POISED TO EMBARK ON THE SUCCESSFUL FINAL PHASE OF THIS STUDY

II. THE 9 CITIES, 3 COUNTIES, AND 2 SPECIAL DISTRICTS PARTICIPATING IN THIS MAJOR REGIONAL EFFORT HAVE DEMONSTRATED THEIR COMMITMENT TO THE TRINITY RIVER. TOGETHER WITH THE STATE OF TEXAS, THROUGH THE TEXAS WATER DEVELOPMENT BOARD, THEY HAVE CONTRIBUTED $4 MILLION TO THIS STUDY. THE UTRFS IS AN OUTSTANDING EXAMPLE OF A GOVERNMENTAL PARTNERSHIP THAT HAS GENERATED POSITIVE RESULTS THE PARTICIPATING LOCAL GOVERNMENTS HAVE DEMONSTRATED THEIR SUPPORT BY CONTRIBUTING TO THE SUCCESS OF THE FEASIBILITY STUDY WITH FINANCIAL COMMITMENTS AND COOPERATIVE EFFORTS. WE ARE VERY APPRECIATIVE OF THE STATE OF TEXAS AND THE TEXAS WATER DEVELOPMENT BOARD FOR THEIR RECOGNITION OF THE IMPORTANCE OF REGIONAL PLANNING AND FLOODPLAIN MANAGEMENT. COLLECTIVELY, WE ARE COMMITTED TO 'NSURING THAT OUR EFFORTS GENERATE A POSITIVE RETURN ON THOSE INVESTMENTS OF TIME AND MONEY.

SINCE THE INITIATION OF THIS STUDY IN 1990, OUR COOPERATIVE EFFORTS HAVE PRODUCED MANY IMPORTANT PRODUCTS AND IMPLEMENTED SIGNIFICANT FLOODPLAIN MANAGEMENT POLICIES RESULTING IN IMPROVED FLOODPLAIN MANAGEMENT PRACTICES. THE EXECUTION OF THIS FEASIBILITY STUDY IS AN IMPORTANT COMPONENT OF NCTCOG'S COMMON VISION PROGRAM. THE COMMON VISION PROGRAM'S OBJECTIVE FOR THE TRINITY RIVER CORRIDOR IS TO ACHIEVE A SAFE, CLEAN, NATURAL, ENJOYABLE AND DIVERSE RIVER CORRIDOR. THESE OBJECTIVES ARE CONSISTENT WITH THE FEASIBILITY STUDY'S AUTHORIZATION THAT DIRECTED THE EFFORT TO FIND SOLUTIONS THAT ADDRESS FLOOD DAMAGE REDUCTION, WATER QUALITY, ENVIRONMENTAL ENHANCEMENT AND RECREATION. OVER THE LAST FIVE AND A HALF YEARS, DETAILED FLOODPLAIN MAPPING, NEW COMPUTER FLOOD DAMAGE ASSESSMENT MODELS, THE CDC PROCESS, AND THE PRELIMINARY ANALYSIS OF DIVERSE ALTERNATIVE MEASURES HAVE BEEN DEVELOPED AND PRODUCED.

III. RESTORING LEVEE PROTECTION IS THE SPECIFIC GOAL OF THIS FY97 FUNDING REQUEST. THIS FUNDING REQUEST IS FOR TWO IDENTIFIED PROJECTS WITH LOCAL SPONSORS READY TO COMMIT COST-SHARE FUNDS FOR THE NEXT STEP.

THE **DALLAS FLOODWAY AND STEMMONS NORTH INDUSTRIAL DISTRICT MEASURES** INCLUDE DETAILED FINAL STUDIES OF ALTERNATIVES TO ENLARGE THE RIVER CHANNEL AND MODIFY EXISTING LEVEES. ALSO THE SCOPE OF WORK INVOLVES A SERIES OF ON-CHANNEL AND OFF-CHANNEL LAKES (CHAIN-OF-LAKES), AND SEVERAL RECREATION AMENITIES INCLUDING:

- HIKE/BIKE TRAILS;
- CANOEING FACILITIES;
- ACTIVE AND PASSIVE (OPEN-SPACE) RECREATIONAL FACILITIES; AND
- VEGETATIVE IMPROVEMENTS (ENVIRONMENTAL RESTORATION AND ENHANCEMENTS).

POTENTIAL CONNECTIONS TO EXISTING PARK AND RECREATION LANDS AND FACILITIES WITHIN OR NEAR THE STUDY AREA WILL ALSO BE CONSIDERED.

THE **FORT WORTH FLOODWAY SUMPS 14W & 15W MEASURES** INCLUDE IMPROVED SUMP STORAGE AND PUMPING FACILITIES. THE PLANS INVESTIGATED WILL INCLUDE THE ADDITION OF MORE SLUICE GATES OR PUMPS.

IV. THE STUDY'S EXECUTIVE COMMITTEE HAS ALREADY APPROVED FOUR REGIONAL IMPLEMENTATION/WORK PLANS IDENTIFIED AS HAVING A LOCAL AND FEDERAL INTEREST. WORK IS NOW UNDERWAY ON THESE PLANS, INCLUDING:

- *TRINITY TRAILS SYSTEM* - THIS CONCEPT APPLIES TO ALL OF THE MAJOR ARMS OF THE TRINITY RIVER IN THE STUDY AREA--THE ELM FOR, MAINSTEM AND WEST FORK THE FOCUS OF THE PLANNING EFFORT IS TO PRODUCE COORDINATED GREENWAY IMPROVEMENTS ALONG THE CORRIDOR THAT PROVIDES RECREATIONAL AND OPEN SPACE AMENITIES WHILE PROTECTING THE NATURAL VALUES AND FUNCTIONS OF THE FLOODPLAIN.

- *REGULATORY FLOOD MODELING AND MAPPING WORK PLAN* - THIS WORK PLAN HAS THE GOAL OF A COORDINATED MODELING AND MAPPING PRODUCT THAT COULD BE USED BY ALL THE FLOODPLAIN-RELATED AGENCIES LOCAL GOVERNMENTS, THE USACE AND THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) WILL ALL BENEFIT FROM THIS COORDINATED MODELING. THE WORK PLAN WILL RESULT IN BETTER, MORE CONSISTENT FLOODPLAIN DECISIONS, AND A STREAMLINED DEVELOPMENT PERMITTING PROCESS

- *CDC PROCESS IMPLEMENTATION PLAN* - THE CDC PROCESS WAS IMPLEMENTED BY THE LOCAL PARTICIPANTS TO STABILIZE EXISTING FLOOD RISKS IN THE CORRIDOR. THE INTERGOVERNMENTAL REVIEW AND INFORMATION TRACKING ELEMENTS OF THE EFFORT TO HELP DECISION-MAKERS TO MAKE THE BEST FLOODPLAIN MANAGEMENT DECISIONS POSSIBLE. THIS IMPLEMENTATION PLAN WILL ESTABLISH WAYS OF KEEPING THE CRITERIA AND PROCESS UP-TO-DATE INTO THE FUTURE

- *REGIONAL FLOODWARNING AND EMERGENCY RESPONSE WORK PLAN* - THIS WORK PLAN IS PURSUING THE ENHANCEMENT AND COORDINATION OF EXISTING LOCAL FLOODWARNING SYSTEMS THROUGHOUT THE TRINITY RIVER CORRIDOR FOCUSED ATTENTION TO THE OPERATION OF THESE SYSTEMS WILL PROVIDE BETTER INFORMATION TO ALL OF THE PARTICIPATING GOVERNMENTS AND PROVIDE IMPROVED EMERGENCY RESPONSE.

V. SUMMARY IN EACH OF THESE EFFORTS, THE GOAL IS TO PROVIDE A DESIRABLE PLAN WHICH CAN BE IMPLEMENTED, HAS FEDERAL AND NON-FEDERAL SUPPORT AND WILL PROVIDE BENEFITS AT A REASONABLE COST REMAINING STEPS TO ACHIEVE THIS GOAL ARE.

- PHASE 1 - TECHNICAL ANALYSIS OF ALTERNATIVES;
- PHASE 2 - ECONOMIC, REAL ESTATE, ENVIRONMENTAL, AND ENGINEERING, AND
- PHASE 3 - FINAL DETERMINATION OF RECOMMENDED PLAN.

THE DIVISION OF THE STUDY INTO THE THREE PHASES IS ROOTED IN THE DESIRE TO PRODUCE A FEASIBLE SOLUTION AS QUICKLY AS POSSIBLE

GIVEN THE POSITIVE RESULTS GENERATED BY THIS IMPORTANT REGIONAL EFFORT THUS FAR, THE TRINITY RIVER CORRIDOR STEERING COMMITTEE ENCOURAGES THE CONTINUATION OF FEDERAL FUNDS FOR THE CONCLUDING PIECES OF THE FEASIBILITY STUDY. SIGNIFICANT LOCAL, STATE AND FEDERAL GOVERNMENTAL INVESTMENT HAS BEEN MADE INTO THIS STUDY WHICH SHOULD BE CONTINUED THROUGH THE PROJECT IMPLEMENTATION PHASES WE URGE CONGRESS TO CONTINUE TO FUND COST-SHARED PROJECTS WITHIN MAJOR URBAN AREAS FOR IMPLEMENTATION SPECIFICALLY, WE REQUEST YOUR SUPPORT OF THE $1.23 MILLION APPROPRIATIONS FOR FY97 TO CONTINUE THE UPPER TRINITY RIVER FEASIBILITY STUDY AS WE PURSUE THE IMPORTANT DALLAS AND FORT WORTH FLOODWAY PROJECTS AND OTHER MULTI-PURPOSE PROJECTS IN THE DALLAS-FORT WORTH AREA.

AS COSPONSORS OF THE NATION'S LARGEST INTERJURISDICTIONAL EFFORT OF MULTIPLE OBJECTIVE FLOODPLAIN MANAGEMENT, WE ARE PLEASED TO BE ABLE TO REPORT OUR COOPERATIVE SUCCESSES AS WE NEAR THE COMPLETION OF STUDY. WITH THIS RECORD AND CONTINUED FEDERAL PARTICIPATION, WE CAN LOOK FORWARD WITH OPTIMISM TOWARD ACHIEVING A "COMMON VISION" FOR THE TRINITY RIVER AS MAYOR KIRK OF DALLAS SUGGESTS, OVER THE NEXT TWENTY YEARS, OUR INVESTMENT IN THE TRINITY RIVER COULD BECOME A REGIONAL PROJECT AS SIGNIFICANT AS THE D/FW AIRPORT

THANK YOU

PREPARED STATEMENT OF WAYNE OWEN, MANAGER OF PLANNING AND DEVELOPMENT, TARRANT COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NUMBER ONE.

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS WAYNE OWEN AND I AM MANAGER OF PLANNING & DEVELOPMENT FOR TARRANT COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NUMBER ONE. OUR DISTRICT OPERATES THE FOUR MAJOR WATER SUPPLY RESERVOIRS THAT SUPPLY THE CITIES OF FORT WORTH, ARLINGTON, AND MOST OF TARRANT COUNTY ALONG WITH PORTIONS OF NINE OUTLYING COUNTIES. WE ALSO OPERATE AND MAINTAIN THE FORT WORTH FLOODWAY ALONG THE WEST AND CLEAR FORKS OF THE TRINITY RIVER THROUGH FORT WORTH.

WE COME HERE TODAY TO TESTIFY IN SUPPORT OF THE $1.2 MILLION PROPOSED APPROPRIATION FOR THE FORT WORTH DISTRICT OF THE CORPS OF ENGINEERS RELATED TO THE UPPER TRINITY FEASIBILITY STUDY. THE STUDY HAS EVALUATED SEVERAL STRUCTURAL FLOOD CONTROL ALTERNATIVES RELATED TO THE FORT WORTH FLOODWAY.

OUR DISTRICT'S ELECTED BOARD OF DIRECTORS HAS WITHIN THE LAST MONTH COMMITTED TO JOINTLY CO-SPONSOR, WITH THE CITY OF FORT WORTH, A DETAILED WORK PROGRAM THAT WILL DETERMINE THE FEASIBILITY OF MODIFICATIONS TO SEVERAL KEY FLOOD CONTROL STRUCTURES WITHIN THE FORT WORTH FLOODWAY. THE $410,000 SCOPE OF WORK WILL BE COMPLETED OVER THE NEXT 14 MONTHS WITH THE CITY OF FORT WORTH AND THE DISTRICT SHARING THE $205,000 LOCAL FUNDING REQUIREMENT.

FUNDING FOR THIS WORK PROGRAM IS CONTAINED WITHIN THE PROPOSED $1.2 MILLION FY 1997 APPROPRIATION FOR THE UPPER TRINITY. WE RESPECTFULLY REQUEST YOUR SUPPORT FOR THIS APPROPRIATION. IT WILL LEAD TOWARD IMPROVEMENTS TO EXISTING FLOOD CONTROL FACILITIES ORIGINALLY DEVELOPED THROUGH FEDERAL AND LOCAL PARTICIPATION SINCE 1950.

OUR COMMUNITY TAKES CONSIDERABLE PRIDE IN THE INVESTMENT THE FEDERAL GOVERNMENT HAS MADE IN THE DEVELOPMENT OF THE FORT WORTH FLOODWAY. THE LEADERSHIP IN OUR COMMUNITY ALSO RECOGNIZES THE NEED TO MAINTAIN THESE IMPORTANT FLOOD CONTROL FACILITIES.

IT IS VERY CRITICAL THAT COMPLETION OF THE UPPER TRINITY RIVER FEASIBILITY STUDY CONTINUE TO BE A PRIORITY FUNDING ISSUE FOR FISCAL YEAR 1997. WE APPRECIATE THE CONSIDERATION THAT THIS SUBCOMMITTEE HAS GIVEN THIS PROJECT IN THE PAST AND ANTICIPATE THE RESULTS OF THIS STUDY WILL IMPACT FLOOD CONTROL PLANNING IN ONE OF OUR NATIONS MORE POPULATED AREAS WELL INTO THE NEXT CENTURY.

THANK YOU.

PREPARED STATEMENT OF ERNIE ZIESCHANG, PRESIDENT, PORT OF LIBERTY COMMISSION

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS ERNIE ZIESCHANG AND I AM TESTIFYING TODAY AS PRESIDENT OF THE PORT OF LIBERTY COMMISSION.

MAINTENANCE DREDGING OF THE TRINITY RIVER FROM OUR PORT AT RIVER MILE 45 TO THE OPEN WATER OF TRINITY BAY AND THE HOUSTON SHIP CHANNEL IS ONE OF THE HIGHEST PRIORITIES OF OUR COMMISSION THIS COMMITTEE HAS SUPPORTED OUR REQUESTS FOR MAINTENANCE FUNDING YEARS PAST, AND IN SO DOING HAS PLAYED AN EXTREMELY POSITIVE ROLE IN SUSTAINING THE ECONOMIC VITALITY OF THE LOWER TRINITY RIVER VALLEY

THROUGH THE PRESIDENT'S BUDGET THE GALVESTON DISTRICT OF THE U S ARMY CORPS OF ENGINEERS WILL NEED TO EXPEND APPROXIMATELY ONE MILLION DOLLARS FOR OPERATIONS AND MAINTENANCE ACTIVITY ALONG THE LOWER TRINITY RIVER. WE AGAIN REQUEST YOUR SUPPORT FOR THIS APPROPRIATION

THE WALLISVILLE PROJECT REMAINS A HIGH PRIORITY OF THE PORT OF LIBERTY COMMISSION. THE CORPS OF ENGINEERS WILL NEED ABOUT $13 TO $15 MILLION DOLLARS DURING THE COMING YEAR FOR CONTINUED CONSTRUCTION ON THIS MOST IMPORTANT PROJECT.

THANK YOU AGAIN FOR YOUR CONSIDERATION AND WE LOOK FORWARD TO YOUR CONTINUING SUPPORT FOR THESE MOST IMPORTANT FEDERAL WATER PROJECTS.

PREPARED STATEMENT OF FREDERICK A. PERRENOT, GENERAL MANAGER, HOUSTON PUBLIC UTILITIES

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

MY NAME IS FREDERICK A. PERRENOT AND I SERVE AS GENERAL MANAGER OF THE HOUSTON PUBLIC UTILITIES. I AM HERE TODAY TO ASK FOR THIS COMMITTEE'S CONTINUED SUPPORT FOR THE WALLISVILLE PROJECT AND TO DISCUSS ITS IMPORTANCE TO THE OVERALL WATER SUPPLY PLAN FOR THE GREATER HOUSTON AREA.

BY DEVELOPING THREE MAJOR RESERVOIRS, A RAW SURFACE WATER CONVEYANCE - DISTRIBUTION SYSTEM, AND A WATER TREATMENT - DISTRIBUTION SYSTEM, THE CITY OF HOUSTON HAS BECOME THE REGIONAL SUPPLIER OF FRESH WATER FOR THE FOUR MILLION RESIDENTS OF THE HOUSTON-GALVESTON AREA. AT A COST OF ABOUT $1 8 BILLION, THE

DEVELOPMENT OF ALL OF THESE FACILITIES HAS BEEN VERY EXPENSIVE FOR THE CITY'S RATEPAYERS AND OUTSIDE CUSTOMERS. HOWEVER, IT HAS BEEN NECESSARY IN ORDER TO MAINTAIN THE CONTINUING, ECONOMICAL SUPPLY OF DRINKING WATER, TO PREVENT SALTWATER INTRUSION INTO THE TRINITY RIVER, AND TO ELIMINATE THE DEVASTATING PROBLEM OF LAND SUBSIDENCE WHICH HAS REACHED LEVELS OF MORE THAN 10 FEET IN SOME AREAS OF THE CITY.

THE WALLISVILLE PROJECT IS AN ESSENTIAL PART OF THIS RESERVOIR SUPPLY SYSTEM. IT WAS PLANNED AND DEVELOPED TO ALLOW THE FULL UTILIZATION OF DRINKING WATER STORED IN LAKE LIVINGSTON BY ELIMINATING THE NEED FOR RELEASES FROM THAT RESERVOIR TO PREVENT SALTWATER FROM INTRUDING UP THE RIVER AND CONTAMINATING WATER SUPPLY INTAKES. THE CITY FIRST ENTERED INTO A CONTRACT WITH THE CORPS OF ENGINEERS (CORPS) TO BUILD THE BARRIER IN 1967. CONSTRUCTION HAS BEEN STARTED, HALTED TO RESOLVE ENVIRONMENTAL ISSUES, AND AFTER RESOLUTION OF THOSE ISSUES, WAS RESUMED IN 1991 WITH FUNDS APPROPRIATED BY CONGRESS. USING THE $5 MILLION APPROPRIATED BY CONGRESS FOR FISCAL YEAR (FY) 1996, THE CORPS AWARDED THE FINAL CONSTRUCTION CONTRACT FOR THE SALTWATER BARRIER. THE CITY IS COMMITTED TO FULFILLING ITS OBLIGATIONS UNDER THE TERMS OF THE CONTRACT AND SUPPORTS THE CORPS EXPRESSED CAPABILITY REQUEST WHICH IS ANTICIPATED TO BE ABOUT $15 MILLION FOR FY 1997. WE EXPECT THAT A $15 MILLION APPROPRIATION, COMBINED WITH AN ADDITIONAL SMALLER APPROPRIATION IN FY 1998, WILL BE SUFFICIENT TO MAKE THE BARRIER OPERATIONAL.

AS RESPONSIBLE MANAGERS, THE CITY IS ALSO PROCEEDING WITH MAJOR STUDIES TO EVALUATE AND ENHANCE PROGRAMS IN THE AREAS OF WATER CONSERVATION, RESERVOIR SYSTEM OPERATION, WASTE WATER REUSE, AND OTHER METHODS TO EFFECTIVELY AND EFFICIENTLY MANAGE EXISTING WATER SUPPLIES. HOWEVER, EVEN WITH THESE PROGRAMS, IT IS PROJECTED THAT WATER DEMANDS WILL EXCEED THE EXISTING AVAILABLE WATER SUPPLIES BY THE YEAR 2010. WITH AN OPERATIONAL WALLISVILLE PROJECT, THE ADDITIONAL DRINKING WATER SUPPLIES IN THE LAKE LIVINGSTON RESERVOIR WILL BE AVAILABLE TO SERVE THE AREA AND WILL MEET EXPECTED DEMAND UNTIL ABOUT 2030.

THE CITY WOULD LIKE TO THANK THIS COMMITTEE FOR ITS LONG TERM SUPPORT FOR THIS ESSENTIAL PROJECT AND TO ASSURE YOU THAT IT

REMAINS A HIGH PRIORITY IN OUR CONTINUING EFFORTS TO MEET OUR RESPONSIBILITIES AS THE REGIONAL SURFACE WATER SUPPLIER.

PREPARED STATEMENT FROM THE PORT OF HOUSTON AUTHORITY

On behalf of the Port of Houston Authority (PHA) and the 196,000 Americans whose jobs depend on the activity of the port, we extend gratitude to Chairman Domenici, Senator Hatfield and members of the subcommittee for the opportunity to submit testimony in support of several important navigation projects included in the U.S. Army Corps of Engineers Civil Works budget for Fiscal Year 1997.

Each of the last six years, the Port of Houston Authority has presented testimony to this subcommittee expressing appreciation for providing the funds necessary for the Houston Ship Channel to remain fully functioning by approval of funds for maintenance dredging and dewaterings of dredged disposal sites; and, to urge you to look to the future with us by providing funds for preconstruction, engineering and design for the project to widen and deepen the Houston Ship Channel. We are appreciative that each year, this subcommittee has provided the necessary support.

Today, we express full support of the FY'97 Corps of Engineers' budget request in the following amounts:

Houston Ship Channel (O&M)	$4,323,000
Bayport Ship Channel (O&M)	$1,160,000
Houston-Galveston Navigation Channels (PED)	$1,900,000

Each of these funding requests is important to ensure the continuous flow of commerce through this Nation's busiest port in foreign tonnage.

Since we last submitted testimony, the Port Authority commissioned and has received an updated economic impact survey. We are quiet proud of the results of that survey and want to share the findings with you.

THE PORT OF HOUSTON - THE NATION'S BUSIEST PORT

Port of Houston commerce generates over $5.5 billion annually to the Nation's economy and an estimated 53,000 people work in jobs that are directly related to Port of Houston activity and another 143,000 jobs are indirectly related to the port's activity. Moreover, the port generates over $200 million annually in state and local taxes and nearly $300 million in customs fees.

It is no exaggeration to say that the Houston Ship Channel is one of the most important economic lifelines between our Nation and the world. Houston's favorable geographic location provides easy access to the entire world business community through key ocean, land, and air routes.More than 150 shipping lines connect Houston with more than 250 world ports. Four major railroads provide cargo distribution throughout the United States with the intermodal link of more than 160 trucking lines. The Port of Houston forms the core of the Houston international community which includes more than 350 U.S. companies with global operations and Houston offices for more than 45 of the world's largest non-U.S. companies. In addition, Houston is the home of one of the largest consular corps in the Nation, with over 60 foreign governments represented. Also, more than 20 countries operate trade offices here. These factors have made the Port of Houston a preferred gathering and distribution point for shippers transporting goods to and from the Midwestern and Western United States.

THE PORT OF HOUSTON - PROTECTING OUR NATION

During the Desert Shield/Desert Storm operation, the U.S. government deployed 106 vessels carrying 458,342 tons of government cargo and military supplies from the Fentress Bracewell Barbours Cut Terminal at the Port of Houston. In fact, between August of 1990 and October of 1991 the Port of Houston was the second busiest port in the Nation in support of our troops. We are proud that the strategic location of the Port of Houston allows us to play such an important role in the defense of our Nation and the world.

Although the official Corps budget request for FY'97 will not be available until March 18, it is our understanding that the Corps will be requesting slightly over $7 million for maintenance dredging and the continuation of pre-construction, engineering, and design for the project to widen and deepen the Houston Ship Channel.

BACKGROUND - HOUSTON SHIP CHANNEL MODERNIZATION

The Houston Ship Channel, which opened in 1914, is believed to be the result of the first-ever federal/local cost-sharing agreement. At that time, the channel was 18-1/2 feet deep. It was subsequently deepened to its current depth of 40 feet with a width of 400 feet. This last improvement was completed in 1966. While Houston is one of our Nation's busiest ports, it is also one of the narrowest deep draft channels. As you can imagine, ships and shipping patterns have dramatically changed to meet the demands of world trade over the last 30 years. Yet, this busy waterway has not been widened or deepened to accommodate these changes. As the local sponsor for the Houston Ship channel, the Port Authority began its quest to improve the channel in 1967. For reasons of safety, environment and economics the Houston ship Channel is long over-due to be improved.

The Port Authority worked with the Corps of Engineers on the engineering and economic feasibility studies to determine if such improvements were advisable. In the developmental stages of this project, concerns were raised over the disposal of dredged material. What has happened during the study phase of the feasibility and environmental impact of the project has been precedent - setting and truly exciting.

THE PORT OF HOUSTON - PROTECTING THE ENVIRONMENT

The Port of Houston, and its partner in maintaining this federal waterway - the Corps of Engineers-are leading the way to a unique approach to addressing the environmental interests in the improvement of the Houston Ship Channel. In the late 1980's, the Port Authority and the Corps of Engineers joined with federal and state agencies to form an Interagency Coordination Team (ICT) in a cooperative effort to address environmental concerns with the project - a process advocated by environmental groups and various resource agencies. The ICT included: the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service (USFWS), the U.S. Natural Resources Conservation Service (USNRC), the U.S. Environmental Protection Agency (EPA), the Texas General Land Office (GLO), Texas Parks and Wildlife Department (TPWD), the Texas Natural Resources Conservation Commission (TNRCC), the Texas Water Development Board (TWDB), the Galveston Bay National Estuary Program (GBNEP), National Marine

Fisheries Service (NMFS), the Port of Galveston, and the Port of Houston Authority. Several committees were established by the ICT. One of the most important committees established was the Beneficial Uses Group (BUG). The BUG, chaired by the Port, was charged with developing a disposal plan to utilize dredged material in an environmentally sound and economically acceptable manner that also incorporated other public benefits into its design. Most important was the Port Authority's committed objective that the final plan would have a net positive environmental effect over the life of the project.

We are pleased to report that the ICT unanimously approved the beneficial use plan for disposal of dredged material from the HSC project as one that will have a net positive environmental effect on Galveston Bay, while significantly increasing the net economic benefits to the region and our Nation. Three basic principles guided the BUG in their efforts: dredged material should be considered a potentially valuable resource; development of an environmentally acceptable disposal plan is intrinsic to the approval of the project; and, the adopted disposal plan must have long term environmental benefits for the Galveston Bay system.

The approach utilized by the BUG for Galveston Bay made this effort unique and precedent setting. What was attempted had never been done before. The BUG developed a preferred disposal plan rather than reviewing a proposal in a regulatory setting. The BUG also addressed one of the largest navigation projects in recent years (approximately 62 Million Cubic Yards (MCY) of new work material and an estimated 200 MCY of maintenance material over the next 50 years. Most importantly, the BUG actively solicited beneficial use suggestions from environmental interests and bay user groups whose collective ideas were given full consideration during the development of the recommended plan. In fact the community identified more beneficial uses than the material available from the project plus 50 years of maintenance dredging. The result was the identification of beneficial uses for the material to be dredged from the improvement project. The final plan includes the creation of 4,250 acres of marsh - a bird island, boater destination, restorations of two islands lost over the years due to erosion and subsidence. In addition, an underwater berm will be constructed to provide storm - surge protection and habitat.

PORT DEVELOPMENT AND ENVIRONMENTAL IMPROVEMENT - PARTNERS

Sound scientific methods were used to examine alternative beneficial use plans including:

- hydrodynamic and salinity models
- analyses of physical data
- sediment contaminant studies, and,
- National Marine Fisheries Service productivity studies to determine the most environmentally appropriate locations for marshes.

To test the BUG's concepts outside the laboratory and to highlight the positive effect of beneficial uses, the Port Authority committed to three demonstration projects in partnership with others. First, the Port Authority and the Corps developed a demonstration marsh on Atkinson Island within previously designated disposal areas in upper Galveston Bay. The 220-acre marsh consists of emergent fill material and 40 acres of shallow, open water.

The cord grass for this marsh was developed within a second partnership. Using field offices, a greenhouse and ponds located at a facility owned by Houston Lighting & Power Company (HL&P), the Port Authority teamed with them and the NRCS to develop a salt grass planting program to supply material for the demonstration island. Training and utilizing participants of the federal Americorps program, the NRCS managed and provided oversight of this large-scale, cord grass cultivation program.

A study was developed to test the large scale feasibility of constructing oyster reefs using coal combustion by-product. The Port Authority entered into yet a third partnership, again with HL&P and GBNEP, to develop a five-acre artificial oyster reef in the Bay, utilizing material from coal ash from local power plants. This partnership demonstrated that successful development of cost-effective, high-quality artificial reef material can benefit the Texas coastal marine ecosystem with associated benefits to all oystering and fishing interests. Equally important is that such use of coal ash material is yet another example of the beneficial recycling of what would otherwise be considered "waste" material.

PORT OF HOUSTON - LOOKING TOWARD THE FUTURE

The voters of Harris County in 1989 committed significant local funding to support these improvements. By a 2 to 1 vote, citizens approved a measure that will provide the local funding ($130,000,000) to deepen the channel to 45 feet and widen it to 530 feet. The Corps of Engineers and resource agencies involved in the ICT and BUG process have worked diligently to address all concerns and to develop a truly unique approach. The Port Authority heartily commends the cooperation and hard work of the Corps of Engineers and the state and federal agencies who have participated in the process that has this project being applauded across the maritime and environmental communities.

All required studies on this improvement project have been completed. The review periods for public comment produced several noteworthy positive comments including praise for the beneficial use plan by the Galveston Bay Foundation and other environmental groups. Most significant is the fact that the Supplemental Environmental Impact Statement (SEIS) on this project is the first in history to have netted no negative comments, during the public review.

The review from the agencies, the same agencies who unanimously approved the BUG plan, will be completed by March 12. The Corps will then begin the internal process to ready the project for the issuance of the Chief of Engineer's report. We have been assured by the Corps the Chief's report will be issued in time for inclusion in the 1996 Water Resources Development Act.

In addition, there are a few other comments regarding the WRDA bill and the report language that are essential to the smooth transition from authorization to appropriation to construction. Both the Galveston District of the Corps and the Port Authority are committed to the continuation of the collaborative effort on which the work on this project has been based, particularly in reference to the design and construction management elements of the BUG plan. Moreover, such heightened participation is consistent with recent initiatives from the Assistant Secretary's office to involve local sponsors more deeply in project implementation. However, currently , there is no authority in WRDA for this to occur, i.e., working together sharing both expertise and manpower prior to authorization and execution of the Project Cooperative Agreement (PCA). Accordingly, specific language will need to be included in the WRDA authorizing documents providing that the Port Authority receive credit against its cost share for the work funded by the Port prior to authorization and execution of the PCA.

The Port Authority has just undertaken a detailed, coordinated Disposal Area Management Program (DAMP) for the four Confined Disposal Facilities (CDFs) affected by this project; these are LERRD costs. This program is essential to ensure the required disposal capacity for the project is available at the initiation of project construction. More critically, this program will result in substantial cost reductions to the Federal Government, the local sponsor and the "local service facilities" who all use these CDFs. These cost reductions are realized both during construction and in subsequent project maintenance. As reflected in the documents supporting the Chief's Report, the District concurs this work is essential. Under current Federal regulations, the local sponsor cannot receive LERRD credit for work done prior to authorization and execution of the PCA. Specific language will need to be included in the WRDA authorizing documents providing that the Port Authority receive credit against LERRD's for the DAMP work currently underway. This is a project in which the local sponsors, and particularly the Port of Houston Authority, have been intensively involved.

Favorable consideration by Congress of the preceding two requests is not shifting costs from one party to another-they are requests that address the Local Sponsor's effort, expertise and concern to further increase this project's cost effectiveness. The work done and funded by the Port Authority resulted in a decrease in the cost of the project.

While this project, as conceived and recommended, does not require the acquisition and construction of new CDFs. The Port Authority wishes to express strong support for the cost-sharing proposal put forth for inclusion in this WRDA by the American Association of Port Authorities (AAPA). This will insure a more equitable cost sharing approach to navigation projects generally.

This project has been studied for over 30 years. It has not only addressed environmental concerns, but has gone several steps further in achieving a plan than will produce a net positive environmental effect on Galveston Bay. It has been determined by the Corps of Engineers to have a greater than 2 to 1 benefit to cost ratio. It has the support of its community as evidenced by the 2 to 1 vote on the local share of the funding. The disposal plan has been approved by all of the state and federal agencies who worked on the project. It has widespread bi-partisan support and the support of Texas Governor George Bush. This project proves that port development and environmental concerns are not mutually exclusive. The time has come for action. Continuation of the funding for pre-construction, engineering and design on this project is essential.

FY '97 APPROPRIATION FOR DREDGING BAYPORT

It is our understanding the Corps' FY '97 budget will include funding for dredging of the Bayport flare. Shoaling has significantly threatened the proper depth of the Bayport channel. An estimated 1.62 million yards of dredged material is expected to be dredged and placed in areas 14 and 15 (semi-confined sites) to maintain federal project depth of 40' in this stretch of the Houston Ship Channel. The Port of Houston Authority, the Houston Pilots, and the users of the Bayport Channel recognize the need to maintain a depth of at least 40 feet for navigational safety. We cannot afford to delay this maintenance dredging.

HOUSTON SHIP CHANNEL - OPERATIONS & MAINTENANCE

It is our understanding that the Corps' FY '97 budget will also include funding for the dredging of Redfish Reef to Morgan's Point at an estimated quantity of 3.2 million cubic yards to maintain the federal project depth of 40' along with associated levee and dewatering of disposal sites. As we stated earlier, maintaining a project depth of 40' is essential to the safety of the vessels that navigate the Houston Ship Channel as well as the pilots whose responsibility it is to safely deliver them to the docks. Dewatering of dredged disposal sites allows the disposal sites to provide maximum capacity. In addition, plans include shore protection for Peggy Lake and Alexander Island disposal areas. Environmental concerns confirm the validity of these projects.

CONCLUSION

We greatly appreciate your past support and urge you to include the funds requested by the Corps in FY '96 Corps appropriations to fully support the projects for the Houston Ship Channel. These maintenance projects and particularly the funding for the Houston Ship Channel widening and deepening project are vital to the Port of Houston's continued ability to move the Nation's commerce in a safe, efficient, and economical manner. We thank you for consideration of these requests.

PREPARED STATEMENT OF DOUG SVENDSON, EXECUTIVE DIRECTOR, GULF INTRACOASTAL CANAL ASSOCIATION

Mr. Chairman and members of the subcommittee, I am Doug Svendson, Executive Director of the Gulf Intracoastal Canal Association. GICA is the oldest continuously operating waterway organization in the country.

Our Association endorses and strongly supports the work of the Army Corps of Engineers in its on going operations and maintenance program. Adequately funded, this program is absolutely critical to safe and efficient operations along the GIWW and, in fact, the entire inland and coastal waterways system. We support the maximum this committee is able to appropriate for this purpose. See additional discussion under Operations and Maintenance , page 2.

GICA supports an add-on for operations and maintenance funds for the Mobile District due to costs incurred following Hurricane Opal. The Mobile District had to spend additional funds in clean up activities, which resulted in the transfer of money from other areas of the District's budget. It appears it may be several years before full utilization of some areas of the Waterway will be restored and we urge the committee to carefully examine its option of providing additional funds.

GICA also requests reservation of the right to amend our testimony, in writing, once precise details of the Civil Works program budget are made available by the Administration later this month.

GICA also supports funding at the Corp's full capability for the project to enlarge the Victoria Channel to make it's dimensions compatible with those on the GIWW.

GICA supports funding for the beach erosion control project at Sargent, Texas, at the Corp's full capability.

GICA supports continuing appropriations for the Industrial Canal Lock at New Orleans, Louisiana. The present lock is located at the junction of the Mississippi River and the Gulf Intracoastal Waterway. Future traffic growth and the importance of the lock to the regional and national economy justify it's replacement.

GICA also supports continuing appropriations for the Intracoastal Waterway Locks, Louisiana study, which includes all the locks on the GIWW in Louisiana west of the Mississippi River.
The study is evaluating which improvements will maximize efficiency of the GIWW and it's connections with the Mississippi River while minimizing costs.

Last year the House Appropriations Committee deleted funding for one Section 216 study of the GIWW from Corpus Christi to Port O'Connor. We hope that precedent will not be repeated in this year's bill with respect to other Section 216 studies which are used to evaluate changes in the GIWW that have occurred since the project's completion.

The Galveston District is presently reviewing serious navigation problems at the point at which the Colorado River crosses the GIWW. Included in this Section 216 study, Brazos River to Port O'Connor, are methods to mitigate tidal currents which affect control of tows between the pontoon bridge and lock entrance, as well as river currents that affect proper alignment of a tow with locks on the west side of the Colorado River.

This section 216 study will determine the best means to correct serious navigation problems which resulted from earlier efforts to increase the flow of fresh water into Matagorda Bay. We hope that funds for this project will not be deleted.

OPERATIONS AND MAINTENANCE

Shallow draft water transportation is no longer principally concerned with moving low value, non-time sensitive commodities. It's focus today is on close coordination between carrier and shipper in a physically and environmentally safe operating environment in which on time and just in time deliveries are crucial to manufacturing and distribution. For this total logistics system to work, especially on the GIWW and our connecting waterways, a well maintained, safe, and efficient waterway is required.

There has been recent industry speculation that a 15% reduction in operations and maintenance funding is planned. This is a major reduction in readiness and efficiency, especially coming on top of earlier cutbacks through the Corps' restructuring program. When this subcommittee has the benefit of a sufficiently detailed Clinton Administration budget for Fiscal year 1997, we strongly recommend you carefully evaluate any cuts in the O&M allowance that will make more difficult the task of insuring physical and environmental safety and overall system efficiency.

As is the case with most of our waterways, the GIWW contains a mixture of old and newer locks and floodgates. In keeping with priorities that must be established due to budget constraints, the industry knows that unlimited construction programs are not feasible into the future. It is a given that the more you construct the more you must operate and maintain, at increasingly heavy costs.

GICA, therefore, espouses a rational water development program to preserve and constantly upgrade the system we have. Timeliness is of vital concern to our shippers. Safety, both physical and environmental, is equally important to both carriers and shippers. To constantly maintain these objectives requires a system wide commitment of financial resources.

Since testifying before the House Energy and Water Development Appropriations Subcommittee on March 5, 1996, more details have become known about future plans to reduce Corps' operations and maintenance by 15%. This reduction is scheduled over a five year period, and regional and national waterways organizations such as GICA will be asked for their observations and recommendations as the plan is developed by the Corps.

I have not yet received my copy of the proposal for comment, and therefore am reluctant to comment specifically about proposals that are still in the developing stage. There are however, two general observations I wish to offer to the committee, with the suggestion that your committee monitor the development of this very large operations and maintenance outlay reduction plan.

First, in the navigation area, budget pressure on the Operations and Maintenance account now and in the future has been recognized for years. While the Corps considers its principal mission in this area is to build and construct, construction is what drives operations and maintenance.

If the Corps is determined to reduce operations and maintenance so that it can build more projects, it must build fewer, at less individual cost, and spread out over longer time periods. Without adhering to these criteria the future financial risk is obvious-insufficient funds for maintenance will haunt the entire system.

Second, it has become common practice for the Corps to regularly use operations and maintenance funds for what are projects for environmental restoration. These can be bank erosion projects, wetlands rebuilding, protection of habitat for wildlife, or even disposal of dredged material.

Some of these enumerated examples are related closely enough to dredging operations to justify use of operations and maintenance funds. I encourage the committee to make certain, through your oversight, that economical, affordable disposal methods are used in the future as operations and maintenance money decreases under this plan.

Preservation of habitat and bank erosion have recent histories of consuming enormous amounts of operations and maintenance funds. No one I know of is opposed per se to protecting habitat, but in the future the real issue will become how expensive, how "gold plated" can these efforts be.

Even in very difficult budget times, the overall return will be worth the O&M expenditures. If the commitment is made we will avoid the risk of loss of foreign markets to other nation's agricultural, chemical, and petroleum commodities producers, and we will minimize our own transportation costs by avoiding accidents and environmental damage. Ultimately, if not properly maintained the system will not be able to operate.

OPERATIONS AND MAINTENANCE, AND ENVIRONMENTAL RESTORATION

Other responsibilities of the Corps, such as environmental restoration, can have severe impacts on overall system maintenance. I bring this to the committee's attention because O&M funds have been used, and may be used again, to protect habitat of endangered species, to combat coastal erosion, and other similar purposes.

In our industry, there is a general expectation, as already noted, of shrinking financial resources for the Civil Works program. As this occurs, everyone is going to have to realize that belt tightening squeezes all interests, across the board. We do not believe it is fair, or good policy, for expensive environmental restoration projects to have unlimited access to O&M funds at the same time that navigation expenditures are being limited.

Everyone I know both within and outside our industry supports measures to protect and enhance the environment. Quite often, however, these measures are costly and for the future must be brought within overall budget constraints.

That concludes our statement Mr. Chairman, and on behalf of GICA I appreciate the opportunity to share our views with this distinguished committee.

PREPARED STATEMENT OF EDMUND G. ARCHULETA, GENERAL MANAGER, EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

Thank you Chairman Domenici and Members of the Subcommittee for the opportunity to provide testimony on behalf of El Paso Water Utilities in support of an appropriation for the development of a reclaimed water project for El Paso, Texas. My name is Ed Archuleta and I am the General Manager of the El Paso Water Utilities Public Service Board.

Short History of El Paso Water Utilities

The Public Service Board was created by the City of El Paso in 1952 to manage the water and wastewater utilities. El Paso Water Utilities is the major service purveyor and regional water and wastewater planning agency for El Paso County as designated by the State of Texas. We serve all the major customers in El Paso County including Fort Bliss military reservation. Our service population is estimated to be 625,000 people.

El Paso is an arid desert community with limited water resources which it must share with New Mexico and Ciudad Juarez, Mexico. It is the nations 19th largest city and the largest city on the U.S./Mexico border. The water supply for the international community consists of the Rio Grande and two small aquifers.

Need for Water Recycling Project

Water from the Rio Grande is fully allocated among agricultural interests under the terms of the Rio Grande Compact - a federal water project. The project water allocations to New Mexico and El Paso area farmers annually is approximately 700,000 acre-feet. In addition, under the International Treaty of 1906, Mexico receives an annual water allocation of 60,000 acre-feet. The City of El Paso currently receives approximately 50,000 acre feet of the 700,000 acre-feet through water rights leases, direct land ownership and other contracts. Demand on the groundwater aquifers is substantial and has resulted in significant declines. Ciudad Juarez, a border community with a population of almost 2 million is completely dependent on one aquifer, the Hueco Bolson, which is also El Paso's primary groundwater supply. El Paso currently depends on groundwater for 55 percent of its total supply. It is projected that the Hueco Bolson will be completely depleted of its fresh water by the year 2025.

In response to these water supply constraints, El Paso has been very active in the area of water recycling and reuse since the 1960's. In the early 1980's, El Paso made history with the successful design and implementation of a project to treat wastewater to drinking water quality standards for injection into the major groundwater supply aquifer. That project, the Hueco Bolson Recharge Demonstration Project has been in continuous operation since

1985. The Project currently reclaims about 7 million gallons per day. With this project, El Paso currently recycles about 12 percent of all the wastewater it collects and treats.

In 1991, we completed a water resources management plan which indicated the need to significantly expand our water recycling capacity. As a result, El Paso Water Utilities has planned a major recycling program with the first priority to serve the northwest portion of the city.

Description of Water Recycling Project

The first water recycling project, the Northwest Reclaimed Water Distribution System, is currently under design. When completed, the project will supply reclaimed water for irrigation and industrial use. Potential customers include city parks, schools, a golf course, the ASARCO smelter and the El Paso Electric Company Rio Grande generating station. The project will recycle approximately 3,000 acre-feet of water per year. Facilities necessary for project implementation include pump stations, reservoirs and distribution mains. Construction of this five phase project is to begin in August 1996. The project was certified by the Border Environmental Cooperation Commission (BECC) in November, 1995.

Benefits of the Project

The primary benefit of the project is to shift 3,000 af/y of demand from potable water to reclaimed water. This will provide potable water to supply approximately 27,000 people each year. Moreover, this water supply is renewable; whereas, increased groundwater pumpage is not. The water "saved" by this substitution can be applied to serve "colonias;" areas outside the city without water and for the growth of the city. The project benefits New Mexico and Mexico because our waters are a shared resource.

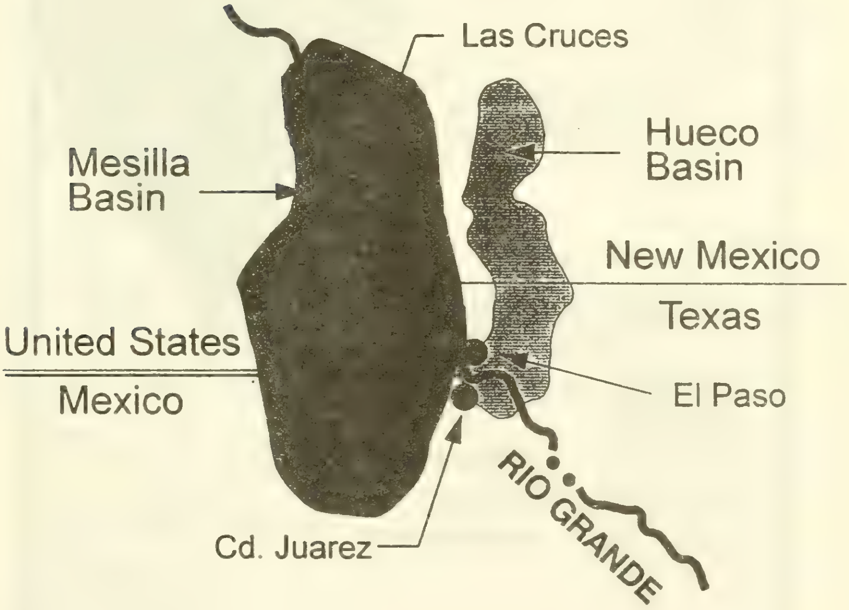
Requested Action

The Public Service Board has agreed to provide matching funds through the issuance of up to $7 million in water and sewer revenue bonds to complete the initial phase of the project. The first phase will match a 1996 appropriation from the Bureau of Reclamation for $1.5 million. The current request is for an additional federal appropriation of $3 million, in order to complete the project. The total project cost is estimated at approximately $18 million.

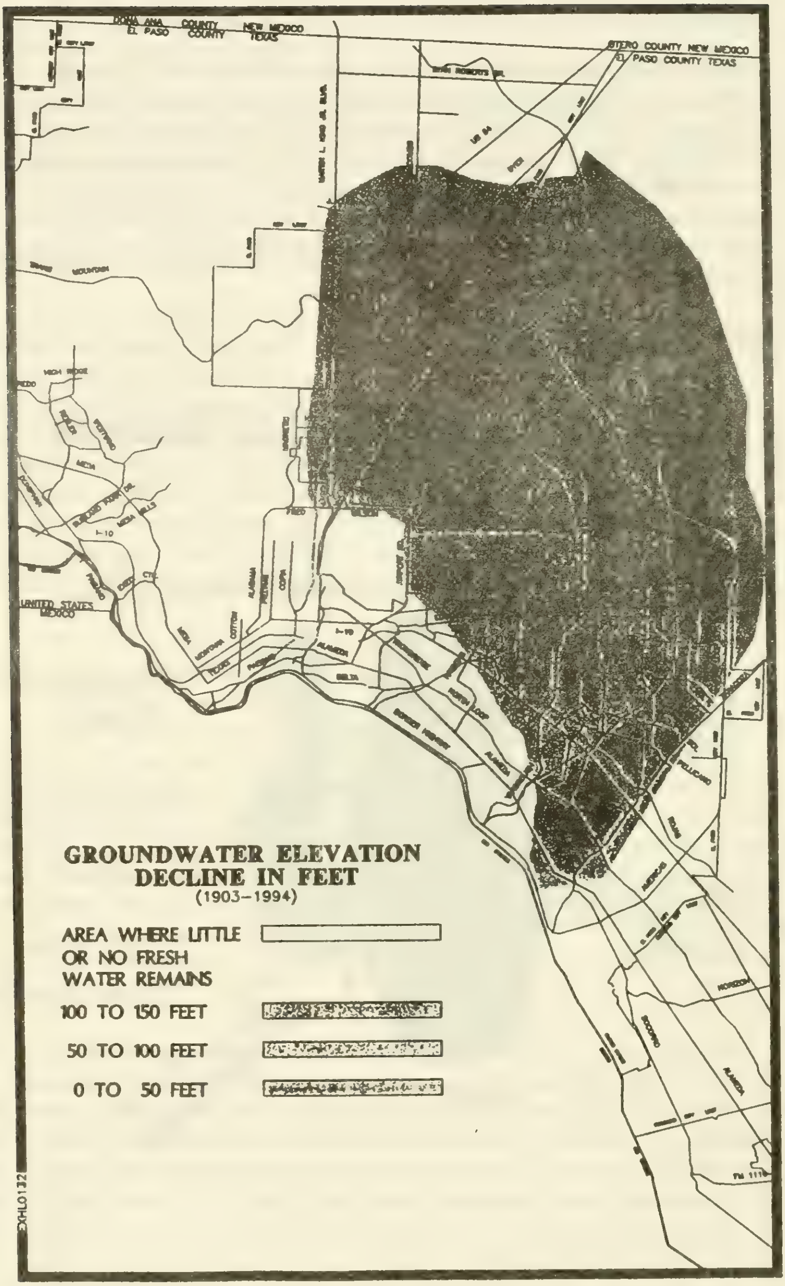
Summary

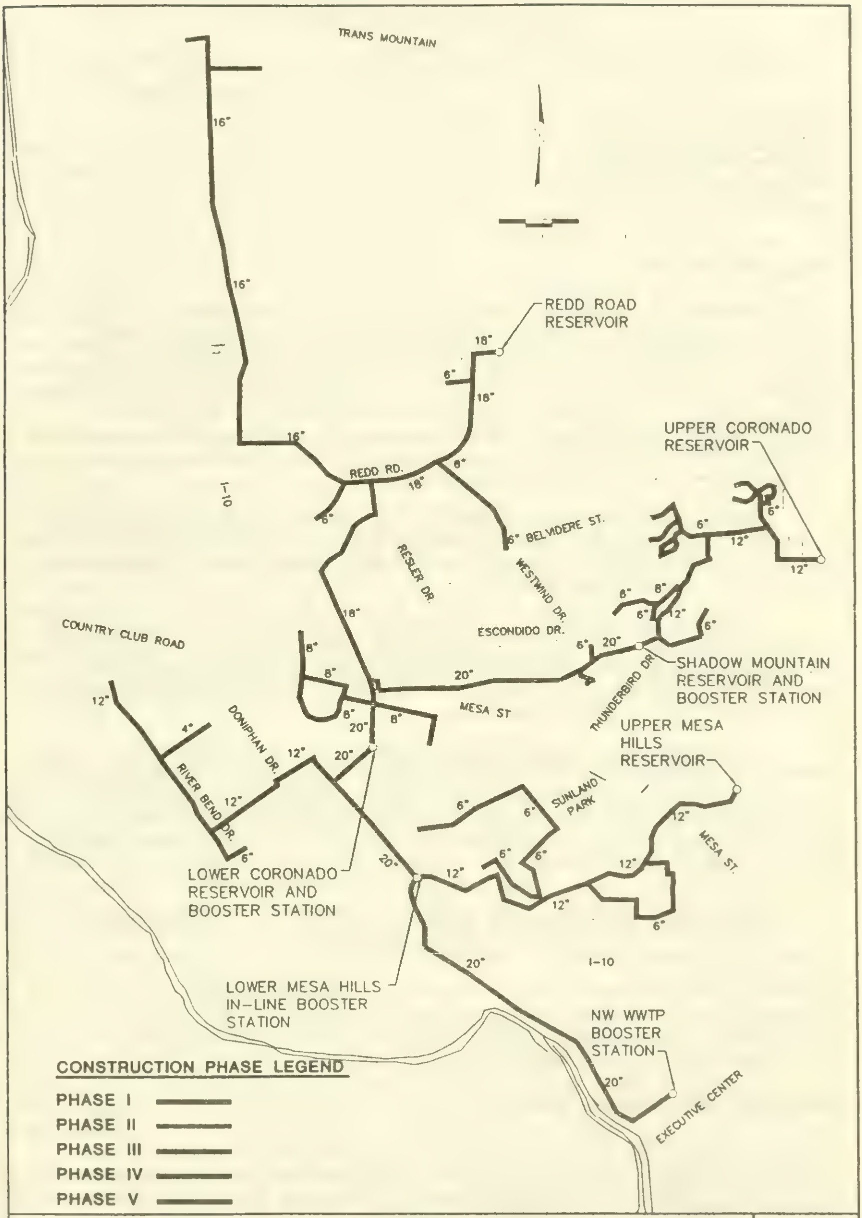
This project has received extensive regulatory review and approval. Furthermore, because it has been reviewed and certified by the Border Environmental Cooperation Commission (BECC), it has received extensive public review and comment as a project which will help achieve a safe and sustainable water supply source for the City of El Paso. The project includes multiple benefits both to El Paso as well as to neighboring border cities. Federal matching assistance in the amount of $3 million will assist in completing this vital project.

Thank you Mr. Chairman.



Mesilla and Hueco Basins


DONA ANA COUNTY
EL PASO COUNTY
NEW MEXICO
TEXAS
OTERO COUNTY NEW MEXICO
EL PASO COUNTY TEXAS
UNITED STATES
MEXICO
I-10
ALAMEDA
NORTH LOOP
FM 1110
GROUNDWATER ELEVATION DECLINE IN FEET
(1903-1994)
AREA WHERE LITTLE OR NO FRESH WATER REMAINS
100 TO 150 FEET
50 TO 100 FEET
0 TO 50 FEET
XHL0132



NW REUSE STUDY
RECOMMENDED SYSTEM

SOUTHWEST AND COLORADO RIVER BASIN WATER RESOURCE DEVELOPMENT PROJECTS

LETTER FROM GOV. MICHAEL O. LEAVITT, STATE OF UTAH

March 30, 1996

The Honorable Peter Domenici
Senate Appropriations Subcommittee on
Energy and Water Development
132 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Domenici:

On behalf of the State of Utah, I request your support for an appropriation in FY97 of $7.468 million to the Bureau of Reclamation for appropriations associated with the Upper Colorado River Endangered Fishes Recovery Implementation Program. This Program is a cooperative effort initiated in 1988 jointly by the states of Colorado, Wyoming, and Utah, the Department of the Interior, the Western Area Power Administration, and environmental and water using organizations. The objective of the Program is recovery of the four endangered fish species, while allowing the states to continue development of Compact-apportioned waters in full compliance with provisions of the Endangered Species Act. This funding is critical to the success of this unique federal/state/private cooperative effort.

Beginning in fiscal year 1994, the Recovery Program initiated specific studies and action in preparation for the construction activities necessary to recover the endangered fish. The fiscal year 1997 funds we are requesting will enable these activities to continue and to be successfully implemented in subsequent fiscal years.

In fiscal year 1988, Congress appropriated $1 million to Reclamation for securing water for the endangered fish. These funds have been used to advance that purpose. Through fiscal year 1995, $522,100 from the previous appropriation was used, and $133,300 will be used in fiscal year 1996. In fiscal year 1997, we will continue to use the remaining $344,800 to acquire water and water rights for the endangered fish.

It is our understanding that the $7.468 million request is included in the FY97 Administration budget for Reclamation under an item labeled "Construction-Endangered Species Recovery Implementation Program-Upper Colorado-Upper Colorado Region-Various Studies." Timely implementation of the Recovery Program is extremely important to the efficient management and development of Utah's water resources, and we will appreciate any assistance you can give to keep this effort moving.

PREPARED STATEMENT OF RANDY HORIUCHI, COMMISSIONER, SALT LAKE COUNTY, UT

On behalf of the Salt Lake County Commission I appreciate the opportunity to submit testimony to the Senate Energy and Water Development Appropriation Subcommittee regarding the Mill Creek Flood Control Project, and the Upper Jordan River Channel Restoration Project.

Mill Creek Flood Control Project

First, I would like to discuss the Mill Creek Flood Control Project, which is located in Salt Lake County, Utah. Salt Lake County has been working with the Army Corps of Engineers on the project for over fifteen years. This project will provide flood protection for over 10,000 people along Mill Creek in central Salt Lake County.

Continual flooding in the Upper Jordan River basin first led to a series of public meetings in 1977 to determine how this flooding could be mitigated. The focus of attention was on the Jordan River, Big and Little Cottonwood Creeks, and Mill Creek. The Corps began an Interim Investigation of the Upper Jordan River in

Fiscal Year 1977, which included the entire Jordan River Basin of north-central Utah. The Jordan River Basin is located in the most highly developed and densely populated area in Utah, and includes the metropolitan areas of Salt Lake City and Provo-Orem. The area was selected for an interim investigation because of rapid urbanization and an increasing frequency of flooding and damages. The principal stream in the basin is the Jordan River, which flows about 40 miles through the Salt Lake Valley to its terminus in the Great Salt Lake. The Jordan River intercepts major tributaries in the Salt Lake Valley, including Little Cottonwood Creek, Big Cottonwood Creek, and Mill Creek, which originates in the Wasatch Mountains southeast of Salt Lake City. These creeks originate at high elevations in the Wasatch Front, where our world famous ski resorts are located, and flow westerly to the valley floor and their confluences with the Jordan River. The streams flow through narrow, deep canyons in the mountainous region before intercepting with the Jordan River, all of which has contributed to a long history of flooding. While flooding is most commonly associated with snowmelt runoff, flooding has also occurred from summer thunderstorms and general rainstorms.

Salt Lake County experienced severe cloudburst flooding in September 1982 and snowmelt flooding in 1983 and 1984. All three events were at or near 100-year flood events. In 1983 and 1984, Salt Lake County was included in the President's emergency disaster declaration area. Following this flooding, Salt Lake County received voter approval for a $33.5 million Bond Issue to pay for major flood control improvements in the area. This coupled with FEMA emergency funds and our regular Flood control mill levy provided over $70 million to restore and improve flood control facilities. One of the major elements of the flood control system not completed by Salt lake County was the overflow diversion from Mill Creek to the Hillview Detention Basin. Since this project met the Corps' requirements, we requested that they take the lead on this project and we have proceeded to this point.

The Mill Creek flood control project has three major features: the diversion structure located just above Highland Drive on Mill Creek, the diversion conduit, and the Hillview Detention Basin located on mostly County owned property at 4100 South between 900 and 1100 East Streets. The diversion structure is a concrete structure approximately 200 feet by 41 feet in size. The diversion structure will divert excess flows to the Hillview Detention Basin via a 96-inch diameter conduit, which will provide protection from a 100-year flooding event. The Detention Basin stores the peak of the storm and releases the storage at a low rate of 30 cubic feet per second. The basin is designed for the combined 100-year peak flow volume from Mill Creek.

The Mill Creek Flood Control Project is a critical element to the overall flood control system for Mill Creek. We have designed and built our channel capacity downstream of the diversion, based on the Federal Diversion project being in place. Residents of Salt Lake County will not have full protection from a 100-year flooding event without completion of the Mill Creek Project.

Based on the latest Design Memorandum for the project, Corps funding needed for FY 1997 is $1.1 million. Including this funding in the FY 1997 Energy and Water Appropriation will provide $375,000 for preparation of plans and specifications, and $725,000 for riparian mitigation construction contract. The President's FY 1997 budget request to Congress did not include funding for this project, which is referred to as the Upper Jordan River Project. It is my understanding that this omission was an oversight, and that the Corps will be requesting new start funding for the Upper Jordan River project when the Administration sends the 1996 Water Resources Development Act (WRDA) to

Congress in the near future. I am hopeful that this clarification will assist the Energy and Water Appropriation Subcommittee in providing the necessary funding for the flood control project.

The Salt Lake County Commission is working concurrently with the Senate Environment and Public Works Committee to obtain a reauthorization for the Mill Creek Flood Control Project in the 1996 Water Resources Development Act. Last November, the Environment and Public Works Committee favorably reported S. 640, the Water Resources Development Act of 1995, including a project modification authorization for the Mill Creek Flood Control Project, as required by Section 902. We are also requesting the House Transportation and Infrastructure Committee to provide a Section 902 reauthorization for the Mill Creek Flood Control Project in the 1996 Water Resources Development Act. This request is being made since preconstruction engineering and design studies (PED) for the Mill Creek Flood Control Project will be completed sometime in Fiscal 1996, and the project will be ready to proceed to construction in Fiscal 1997. In February I testified on behalf of the Salt Lake County Commission before the House Water Resources and the Environment Subcommittee requesting that reauthorization be included in the 1996 Water Resources Development Act for the Mill Creek Flood Control Project.

I am hopeful that the Senate Energy and Water Appropriation Subcommittee will provide $1.1 million for the Mill Creek Flood Control Project, which will enable the Corps to proceed with this project.

Upper Jordan River Channel Restoration Program

The Salt Lake County Commission would also like to request the Subcommittee's support for providing funding in the FY 1997 Energy and Water Appropriation for the Upper Jordan River Channel Restoration Project through the Section 1135 Environmental Restoration Program. Under this authority, the Corps, in cooperation with non-Federal sponsors, may make structural or operational modifications to existing Corps projects for ecosystem restoration purposes.

There is increasing concern at both the State and local level in Utah regarding floodplain problems and wetlands deterioration along the Jordan River, as well as stormwater and nonpoint source pollution along the river. The Salt Lake County Commission believes that effective watershed management can help alleviate these problems.

The Salt Lake County Commission has undertaken an aggressive program to protect the Jordan River, which is the principal drainage area in the Salt Lake Valley. The Commission believes that traditional flood control measures can be complemented by more environmentally benign measures that can also control flooding, excessive erosion, and sedimentation. To accomplish this goal, Salt Lake County instituted the Jordan River Sub-Basin Watershed Management Council in June 1993, which was established to promote and enhance intergovernmental coordination and planning efforts along all stream corridors in the Salt Lake Valley drainage area. The Council is comprised of state, local and federal representatives that serve an advisory role to the County Commissioners. This approach is the forerunner of state and federal movements toward the concept of total watershed management.

As part of this watershed management program, Salt Lake County manages the Jordan River Wetland Acquisition Program, in which $7 million authorized under the Central Utah Project Completion Act was provided to create open space reserves for up to 1000 acres of high quality wetlands which are threatened by development along the Jordan River. This funding will help protect the watershed and contribute to flood protection.

Restoring the watershed through channel restoration is the next crucial step in flood control protection. To accomplish this, Salt Lake County is requesting a Section 1135 Environmental Restoration program authorization from the Senate Environment and Public Works Committee in the 1996 Water Resources Development Act. Channel protection and restoration using environmentally benign measures will not only provide flood control protection, but will also contribute to the restoration of water quality, control of sedimentation, and restoration of wetlands to their natural state. Expansion of the existing 1135 Program will be needed for the Upper Jordan River restoration project, since the Corps is currently only allowed to implement restoration projects where a project constructed by the Corps has contributed to degradation of the quality of the environment. According to our records, the Corps has dredged approximately one mile of the Upper Jordan River. Section 312 of S. 640 of WRDA as reported out of the Environment and Public Works Committee last November would expand the 1135 Program by providing the Corps with the authority to undertake environmental quality restoration projects in areas not immediately in the vicinity of the project structures.

Extensive studies of the dredging, diking and channelization of the Jordan River have already been conducted, which include recommendations on how natural controls such as revegetation and stream stabilization could control flooding. Our most recent estimates identify 16 miles of the Jordan River that have been dredged, diked, narrowed and channelized from 2100 South to the Utah County line. The historical floods in 1982 resulted in further aggravation of both bed and bank erosion. Stabilizing the river beds would involve vegetative controls, as well as some structural components that will help regrade the river to achieve a more natural meandering flow. Extensive planning of environmental protection and restoration of the Jordan River over the last ten years would allow the Corps to quickly complete this project.

It has been estimated that the costs for restoring and protecting river channels along the Upper Jordan would be $5.5 million, which would include revegetation, structural components, and grade controls. Extensive planning conducted by Salt Lake County in the last 10 years precludes the need for further extensive study. Specific siting and design of the project are now needed. As the 1135 Program provides a 75 percent federal match for environmental restoration projects, the federal share being requested for the Upper Jordan River Restoration Project is $4.1 million. The following provides a financial breakdown of the project: Based on updated excavation and revegetation costs, it is estimated that remaining stabilization of east and west banks require an additional $4.2 million. Cost estimates for grade control structures, which would enable both fish and recreational boat passage, is estimated at $250,000 each. Our present needs assessment identifies that six of the grade control structures be located on the upper Jordan River, for a total estimated cost of $1.25 million.

Environmental restoration and protection of the Jordan River in the Salt Lake Valley will provide numerous benefits to the Federal government as well as Salt Lake County residents. Besides providing flood control protection by returning the river to a more natural meandering corridor, it will improve water quality, control of toxic sediments, and improve fish and wildlife habitat. Protecting the urban watershed through benign management techniques will reduce flood control costs to the Federal government in the future.

Environmental protection and restoration of the Jordan River has wide support from all of the municipalities in Salt Lake County, as well as the State Department of Environmental Quality. I am hopeful that the Energy and Water Appropriation Subcommittee will provide funding for the Corps to carry out the Upper Jordan River Restoration project.

PREPARED STATEMENT OF MAYOR MAX HOGAN, CITY OF WEST JORDAN, UT

Mr. Chairman, and members of the Subcommittee, I am pleased to have the opportunity to submit testimony regarding S. 901 and West Jordan's Water Reuse Project. The total cost of the water reuse project is $6.24 million, and the City of West Jordan is requesting that the Subcommittee provide a 25 percent federal share of $1.56 million in the FY 1997 Energy and Water Appropriation.

S. 901

S. 901, as introduced by Senator Bennett, would authorize various water recycling projects and desalting demonstration projects. The Senate Energy and Natural Resources Committee held a hearing on S. 901 last December, at which time Senator Bennett testified in support of including West Jordan's Water Reuse Project in the bill when the Committee considers the legislation. A copy of Senator Bennett's statement is included. The City of West Jordan strongly supports S. 901, since it encourages the reuse of recycled wastewater. This is critical to arid states such as Utah, who must find alternative water sources in a rapidly developing region. West Jordan is currently developing a water reuse project, but it's success is dependent on federal seed money to initiate such an effort.

The "Reclamation Wastewater and Groundwater Study and Facilities Act" of 1992 first directed the Secretary of the Interior to initiate a program to investigate and identify opportunities for reclamation and reuse of municipal, industrial, domestic, and agricultural wastewater, and naturally impaired ground and surface waters, for the design and construction of demonstration and permanent facilities to reclaim and reuse wastewater. The Act also authorized the Interior Secretary to construct certain demonstration projects for the development and demonstration of appropriate treatment technologies for the reclamation of municipal, industrial, domestic, and agricultural wastewater. This legislation was an important first step in encouraging the reuse of reclaimed water.

West Jordan's Water Reuse Project

West Jordan City, located in Salt Lake County, Utah, is experiencing rapid growth which has led to an increasing demand for water. Water use in West Jordan City more than doubled from 6,611 acre-feet in 1984 to 13,263 acre-feet in 1994. That's over a 100 percent increase in just ten years. This rapid growth is forecasted to continue. Wells owned by West Jordan City currently supply about one-half of the City's total water demand, and water purchased from the Salt Lake County Water Conservancy District (SLCWD) supplies the balance of the City's water demand. To meet this significant increase in water demand, West Jordan City has little other alternative than to purchase more water from SLCWCD Unfortunately, this is not a long range alternative since SLCWCD is projected to reach their committed peak flow capacity within the next three years. Without an alternative water source, West Jordan City, which currently purchases forty to fifty percent of their water supplies from SLCWCD, will face a severe water shortage supply. Water conservation programs have already begun, but water conservation alone is insufficient to handle the burgeoning water demands of the Salt Lake Valley.

To meet these anticipated water demands, West Jordan City believes that reclaimed water must be used as a water source for non-potable use. Reclaimed water is defined as properly treated municipal wastewater, and water reuse is defined as putting the reclaimed water to a beneficial use. Replacing potable water with reclaimed water for non-potable purposes will make additional water available for potable use. Reclaimed water is being used in a number of areas for agricultural and landscape irrigation, industrial use, groundwater recharge, and recreational and environmental enhancement, but has seen only very limited use in Utah.

The timing of S. 901 could not be better, since the Utah State Legislature passed legislation last year allowing municipalities to reuse water discharged from wastewater treatment plants if the water originated under the water rights held by that municipality. A copy of this legislation is included in Appendix A. Wastewater generated by West Jordan is currently treated at the South Valley Water Reclamation Facility (SVWRF), a regional wastewater treatment facility. West Jordan City could reuse their share of the effluent from SVWRF, once properly treated, to irrigate parks, golf courses, cemeteries, schools, and other open areas.

West Jordan City recently commissioned a feasibility study by outside consultants to determine the economic feasibility of water reuse by West Jordan City. I would like to take a few moments to explain the results of this study.

Wastewater reuse rules recently adopted by the Utah Water Quality Board define allowed uses for reclaimed water, required treatment and quality standards, and monitoring requirements. The Wastewater Reuse Rules classify water reuse as the following: Type I - Human Exposure Likely, and 2) Type II - Human Exposure Unlikely. West Jordan would like to apply these water reuse rules adopted by the Utah Water Quality Board by using reclaimed water to irrigate parks, schools, and golf courses, which would be classified as Type I. Type I water reuse requires secondary treatment, filtration, and disinfection. The South Valley Water Reclamation Facility does not currently include a final effluent filtration process. Therefore, such a filtration system would need to be added to the waste treatment facility before Type I water reuse could be implemented.

West Jordan can reuse the water which originates under their water rights and is treated by the South Valley Water Reclamation Facility. The City will need to contract with the regional waste treatment facility for the purpose of reusing the effluent. The General Manager of the South Valley Water Reclamation Facility, John Callis, has indicated that SVWRF strongly supports water reuse and will cooperate with West Jordan's water reuse project.

Applications for Water Reuse

West Jordan would like to use reclaimed water to irrigate parks, golf courses, cemeteries, schools and other large open areas owned by public entities.

Project Description

West Jordan's water reuse project would consist of the construction of the facilities to treat and distribute reclaimed water for the irrigation of public and, possibly, private properties. Based on the "West Jordan City Water Reuse Feasibility Study", the project is estimated to cost $6.24 million. The project's cost estimate is described in detail in Appendix B. The overall system would include piping, a main pump station, a booster pump station, a storage reservoir, and polishing filters. Reclaimed water could be pumped to the high end of the system throughout the day and night. During periods of irrigation, the overall demand would be met from both the reservoir and the pump stations. The main pipeline would connect the SVWRF to the storage reservoir located near Old Bingham Highway at Elevation 4720. The main pipeline would be located primarily in the railroad right-of-way and consist of 24" diameter PVC pipe. Lateral pipelines ranging from 6" diameter to 18" diameter would connect the main pipeline to the irrigated areas.

Pumping requirements would be met by a main pumping station at or near the SVWRF and a booster pump located at approximately the mid-point of the water distribution system. The main pump station would be located near the outlet of the polishing filter. The overall system layout is shown in Appendix C. Results of the feasibility study show that 1 to 2 days of storage volume would be required to efficiently use the reclaimed water. Storage would be necessary because most irrigation would occur in a 7 to 8 hour period during the night, while effluent discharge from the SVWRF would have a tendency to be higher during morning and evening hours. Storage requirements for 1 to 2 days of operation during the period of peak demand would be 4.5 to 8.9 million gallons. A concrete lined, open reservoir with a total storage capacity of about 6 million gallons was recommended in the feasibility study.

The filtration system is critical to the West Jordan Water Reuse Project, since the State Wastewater Reuse Rules require that the wastewater intended for Type 1 water reuse pass through a filtration system. Final effluent filtration is currently not in place at the SVWRF, so the filters would need to be constructed before Type 1 water reuse could be implemented. Disinfection would be required following filtration.

Cost Comparison

Appendix D lists the costs of West Jordan's three water supply alternatives. The cost per acre-foot of reclaimed water would be $280-$390, This is greater than the Salt Lake County Water Conservancy District's potable water which costs on a weighted average to West Jordan City approximately $240 per acre-foot. However, West Jordan City has purchased water from SLCWCD at upwards of $340 per acre-foot. The cost per acre-foot of reclaimed water could be reduced by selling more reclaimed water at off-peak hours to industrial users or to other reuse alternatives. Grants or subsidized financing could significantly reduce West Jordan's cost for a water reuse project.

West Jordan capacity for groundwater sources is limited, and cannot depend on the SLCWCD, which wholesales water to over half of the geographic area of the Salt Lake Valley, to provide additional water since peak capacity will be reached within three years. West Jordan's water use history, projected future water use, are included in Appendix E. The SLCWCD will have to expand their capacity of aqueduct and treatment facilities by the year 2005 to meet increasing water demands in the Salt Lake Valley. West Jordan's water reuse project will reduce our dependency on potable water from the Conservancy District, and therefore reduce the need for expansion of their facilities. Over half of SLCWCD's capacity is devoted to outdoor irrigation. West Jordan's water reuse project, which is intended to be used to irrigate parks, golf courses, and other public entities, will reduce the peak loading on the SLCWCD system. For this reason, David Ovard, the General Manager of the SLCWCD, strongly supports our project. A letter of support from the SLCWCD is included in Appendix F .

Summary

West Jordan's water reuse project for irrigation of parks, cemeteries, and golf courses is feasible and has the support of the South Valley Water Reclamation Facility as well as the Salt Lake County Water Conservancy District. However, the estimated per acre-foot cost of the reclaimed water would likely be higher than water purchased from the Salt Lake County Water Conservancy District or supplied by West Jordan's wells. As a result, alternative methods of financing must be found in order to make the project cost-effective.

Water reuse would become more economically feasible if options are utilized that lower the construction costs for the reuse system or increase the annual water sales without increasing the peak demand. While West Jordan is pursuing low cost loans with the state and federal government, grants are also needed to make the water reuse project cost-effective. For this reason, West Jordan would greatly appreciate the Subcommittee's support for authorizing our water reuse project in S. 901. Providing an authorization for a 25 percent federal match for our project would provide $1.56 million in sorely needed federal funds. This critical grant will make our project cost-effective, while at the same time mitigating the need for the water wholesaler in the Salt Lake Valley to make costly upgrades.

Increased water sales without increasing peak demand are possible if industrial users are willing to purchase significant quantities of water during non-peak irrigation periods, and low-cost loans or grants are secured. Kennecot Copper Corporation, a major mining company in Utah, has indicated to West Jordan that they are interested in using reclaimed water. Since the water use patterns of industries are usually different than irrigation use patterns, industrial use could enhance the efficient use of the system with only small increases in the cost.

West Jordan will also implement a public education program as part of their water reuse project to increase public understanding of water reuse and to help gain public support for a reuse program.

I greatly appreciate the opportunity to submit testimony before the Energy and Water Development Subcommittee regarding the West Jordan Water Reuse Project. I hope that the Subcommittee will see fit to appropriate $1.56 million for West Jordan's Water Reuse Project in the FY 1997 Energy and Water Appropriation.

PREPARED STATEMENT OF ROBER F. BENNETT, U.S. SENATOR FROM UTAH

Mr Chairman, I am pleased to come before the Committee this afternoon to testify in favor of S 901 which I introduced last June. I appreciate the willingness of the Committee to hold a hearing on this legislation.

In my home State of Utah, water is a precious commodity and becomes more precious each day Our state's population experiences phenomenal growth each year as more and more people seek refuge from the crowded urban areas. They come to Utah for our clean air, the abundant recreational opportunities and our vibrant economy. However, this growth does come with a substantial price tag.

Governor Leavitt recently convened a Growth Summit to discuss the challenges our State must address in the next century. The economy, open spaces, agriculture, infrastructure, and of course, water were all discussed at length. Again, it was made clear that we must make better use of our limited resources if we want to preserve the tremendous quality of life we enjoy. This legislation which I have introduced will allow for the better use and management of our limited water supplies. In particular, the communities of Salt Lake City, West Jordan and St. George will greatly benefit from this legislation. These communities are among the fastest growing in the State. I recognize the committee may want to amend my introduced bill. In fact, since its introduction, the City of West Jordan has come to me and asked that I amend the legislation to include a water reuse project for their city.

S. 901 will provide a sensible and lasting solution to the growing problem of dwindling municipal, industrial, and agricultural water supplies in many areas of the country. It will protect and preserve sensitive watershed environments by reducing the demand for freshwater supplies. There are several reasons why Congress should adopt this legislation.

First, economically and environmentally, one of the best steps we can take to guaranteeing more dependable and cheaper supplies of water is to place greater emphasis on water reuse and recycling. Recycling programs treat wastewater so that it can be safely used to irrigate land, golf courses, crops, and freeway medians and replenish groundwater basins. Recycled water is also increasingly being used by industry because it has been proven a cost effective method.

Another reason this legislation makes good sense is that it will allow local municipalities the opportunity to utilize the expertise of the Bureau of Reclamation more effectively. As you know, the Bureau of Reclamation has closed the chapter of building large dams throughout the West. The Bureau's mission now is to assist in the water management of existing water supplies. From a public policy point of view, it is far cheaper to help our local western communities recycle water than it is to construct expensive new reservoirs and water delivery facilities.

Another reason to consider S. 901 is the role it will play in relieving the burden on local communities in preserving critical water supplies for threatened and endangered species. Past federal legislation such as the Endangered Species Act and the Central Valley Improvement Act have placed tremendous stress on fresh water reserves by mandating that large portions of water sources be diverted from use by municipal water suppliers to be dedicated to general fish and wildlife and habitat purposes. As a result, public water agencies have begun to search for alternative sources of water to meet the demands of rising populations and to limit the effects of regulatory burdens. The costs of transporting water over great distances or storing vast reserves of water have made the development of alternative water sources much more economically feasible. The added environmental benefits also make these sources increasingly desirable.

Title XVI of the Reclamation Projects Authorization and Adjustment Act of 1992 provides for water recycling projects and has been a major success. It should be considered a model for other infrastructure funding efforts. Compared to other Federal programs, it is "user friendly" and virtually free of red tape and because the program is highly leveraged, meaning 75 percent local cost sharing, it is not subject to criticism for subsidizing unworthy projects. As a result, the water recycling program has enjoyed wide bipartisan support in Congress and from both the Bush and Clinton administrations. It is also backed by national and local environmental organizations.

Because of the success of Title XVI, communities from around the country are beginning to look at water recycling as not only an attractive new way to serve their customers, but also the environment. This is a unique, win-win program which goes a long way toward preparing our communities for the future, by assisting them in meeting the growing demands of fresh water supplies while protecting those valuable resources and our environment. I urge the Committee to consider the merits of this legislation and adopt S. 901.

Enrolled Copy H.B. 105

WATER REUSE - SEWAGE EFFLUENT

1995 GENERAL SESSION

STATE OF UTAH

Sponsor: David Ure

AN ACT RELATING TO THE CONSERVATION AND USE OF SEWAGE EFFLUENT; PROVIDING FOR THE USE AND CHANGE IN POINT OF DISCHARGE OF SEWAGE EFFLUENT BY MUNICIPALITIES AND OTHER GOVERNMENTAL ENTITIES.

This act affects sections of Utah Code Annotated 1953 as follows:

ENACTS:

73-3c-1, Utah Code Annotated 1953
73-3c-2, Utah Code Annotated 1953
73-3c-3, Utah Code Annotated 1953
73-3c-4, Utah Code Annotated 1953
73-3c-5, Utah Code Annotated 1953
73-3c-6, Utah Code Annotated 1953
73-3c-7, Utah Code Annotated 1953
73-3c-8, Utah Code Annotated 1953

Be it enacted by the Legislature of the state of Utah:

Section 1. Section 73-3c-1 is enacted to read:

CHAPTER 3c. CONSERVATION AND USE OF SEWAGE EFFLUENT

73-3c-1. Definitions.

As used in this chapter:

(1) "DEQ" means the Department of Environmental Quality.

(2) "POTW" means a publicly-owned treatment works as defined by Section 19-5-102.

(3) "Regional POTW" means a publicly-owned treatment works that serves more than one governmental entity.

(4) "Sewage effluent" means the product resulting from the treatment of sewage and other pollutants by a POTW pursuant to discharge limitations set under the Clean Water Act of 1977, 33 U.S.C. Sec. 1251 et. seq. and Title 19, Chapter 5, Water Qualit

(5) "Water right" means.

(a) a right to use water evidenced by any means identified in Section 73-1-10;

(b) a right to use water under an approved application;

(i) to appropriate;

(ii) for a change of use; or

(iii) for the exchange of water; or

(c) a contract authorizing the use of water from a water wholesaler or other water supplier having a valid water right under Utah law.

Section 2. Section 73-3c-2 is enacted to read:

73-3c-2. **Municipality may use sewage effluent in a manner consistent with its water rights -- Change application to be filed for uses inconsistent with water rights.**

(1) Any municipality or other governmental entity owning and operating a POTW that treats sewage and other pollutants contained in water collected from water supplied under the governmental entity's water rights may apply the resulting sewage effluent to a beneficial use consistent with, and without enlargement of, those water rights.

(2) The governmental entity must file a change application with the state engineer if it proposes to use sewage effluent:

(a) outside the defined place of use or for purposes other than those authorized in the underlying water rights; or

(b) in a manner otherwise inconsistent with the underlying water rights.

Section 3. Section 73-3c-3 is enacted to read:

73-3c-3. **Person or entity administering a regional POTW may act as agent for the use of sewage effluent -- Change application to be filed for uses inconsistent with water rights of entities served by the regional POTW.**

(1) (a) Any municipality or other governmental entity served by a regional POTW that treats sewage and other pollutants contained in water collected from water supplied under the governmental entity's water rights may contract with the person responsible for administration of the regional POTW to act as its agent for the purpose of using sewage effluent discharged from the regional POTW.

(b) The sewage effluent may be applied to a beneficial use consistent with, and without enlargement of, the governmental entity's water rights referred to in Subsection (a).

(2) The person administering the regional POTW, as agent for an individual municipality or other governmental entity served by it, must file a change application with the state engineer if the person administering the POTW proposes to use sewage effluent:

(a) outside the defined place of use or for purposes other than those authorized in the underlying water rights; or

(b) in a manner otherwise inconsistent with the underlying water rights.

Section 4. Section 73-3c-4 is enacted to read:

73-3c-4. **Consideration and approval of change applications to effect the use of sewage effluent.**

Any change application filed to effect the use of sewage effluent shall be considered and approved in accordance with Section 73-3-3.

Section 5. Section 73-3c-5 is enacted to read:

73-3c-5. **Priority of a use of sewage effluent.**

(1) The priority of any use of sewage effluent shall be consistent with the priorities of the underlying water rights, except as provided in Subsection (2).

(2) If the state engineer approves a change application filed in accordance with Subsection 73-3c-2(2) or 73-3c-3(2), the priority of the sewage effluent use shall be the date the change application was filed.

Section 6. Section 73-3c-6 is enacted to read:

73-3c-6. **Sewage inflow that consists of unappropriated water -- Application to appropriate may be made.**

If a portion of the sewage inflow to any POTW consists of any unappropriated water of the state, the person owning or administering the POTW or any other person may apply to the state engineer to appropriate the water to a beneficial use.

Section 7. Section 73-3c-7 is enacted to read:

73-3c-7. **Change of point of discharge of sewage effluent.**

(1) The point of discharge of sewage effluent from a POTW may be changed, if:

(a) the change in point of discharge is required for treatment purposes as a matter of public health, safety, or welfare under DEQ rules and the POTW's discharge permit; and

(b) (i) the sewage effluent is discharged into waters of the state and not applied to a beneficial use; or

(ii) the sewage effluent is applied to a beneficial use consistent with, and without enlargement of, the underlying water rights as provided in Subsection 73-3c-2(1) or 73-3c-3(1).

(2) If a change in the point of discharge is to be made in conjunction with a proposed use of sewage effluent that is specified in Subsection 73-3c-2(2) or 73-3c-3(2), a change application must be filed as provided in those subsections.

Section 8. Section 73-3c-8 is enacted to read:

73-3c-8. **Notification of a sewage effluent use or change in point of discharge -- State engineer to make rules.**

(1) Any person intending to apply sewage effluent to a beneficial use pursuant to Subsection 73-3c-2(1) or 73-3c-3(1) or change the point of discharge of sewage effluent pursuant to Subsection 73-3c-7(1) shall notify the state engineer of the use or change in point of discharge as provided by rules of the state engineer.

(2) (a) The state engineer shall publish the notification in a newspaper of general circulation in the county where downstream water users may be affected by the use or change in point of discharge.

(b) The notification:

(i) shall be published once a week for two successive weeks; and

(ii) may be published in more than one newspaper.

Table 3. Conceptual Level Construction Cost Estimate for Option 1

				With "Cast-in-Place" Type Filter		With "Package" Type Filter	
Item	Description	Unit	Quantity	Unit Cost	Total Amount	Unit Cost	Total Amount
1	24" Dia PVC Pipe	LF	25700	$52.00	$1,336,400	$52.00	$1,336,400
2	14" Dia. PVC Pipe	LF	6000	$22.00	$132,000	$22.00	$132,000
3	12" Dia. PVC Pipe	LF	2000	$19.30	$38,600	$19.30	$38,600
4	6" Dia. PVC Pipe	LF	6300	$12.20	$76,860	$12.20	$76,860
5	Select Backfill	CU YD	13100	$6.50	$85,150	$6.50	$85,150
6	Haul Away	CU YD	6600	$6.50	$42,900	$6.50	$42,900
7	Combination Valves	EA	16	$2,300.00	$36,800	$2,300.00	$36,800
8	PRV Station	LS	1	$30,000.00	$30,000	$30,000.00	$30,000
9	Misc. Valves and Fittings	LS	1	$100,000.00	$100,000	$100,000.00	$100,000
10	Hwy and RR Crossings	EA	4	$30,000.00	$120,000	$30,000.00	$120,000
11	18" Dia. Flow Meter	LS	1	$25,000.00	$25,000	$25,000.00	$25,000
12	Main Pump Station						
a	Horizontal, Split-Case Pump	EA	1	$20,000.00	$20,000	$20,000.00	$20,000
b	300 HP Motor	EA	1	$5,000.00	$5,000	$5,000.00	$5,000
c	300 HP VFD Drive	EA	1	$30,000.00	$30,000	$30,000.00	$30,000
d	Pump House, fittings, etc.	LS	1	$75,000.00	$75,000	$75,000.00	$75,000
13	Booster Pump Station						
a	Horizontal, Split-Case Pump	EA	1	$20,000.00	$20,000	$20,000.00	$20,000
b	300 HP Motor	EA	1	$5,000.00	$5,000	$5,000.00	$5,000
c	300 HP VFD Drive	EA	1	$30,000.00	$30,000	$30,000.00	$30,000
d	Pump House, fittings, etc.	LS	1	$75,000.00	$75,000	$75,000.00	$75,000
14	Telemetry	LS	1	$25,000.00	$25,000	$25,000.00	$25,000
15	Filter System						
	"Cast-in-Place" Type Filter	LS	1	$1,100,000.00	$1,100,000	NA	$0
	"Package" Type Filter	LS	1	NA	$0	$450,000.00	$450,000
16	6 MG Storage Reservoir						
a	Concrete	CU YD	1220	$200.00	$244,000	$200.00	$244,000
b	Embankment Material	CU YD	8000	$3.00	$24,000	$3.00	$24,000
c	Emergency Overflow	LS	1	$5,000.00	$5,000	$5,000.00	$5,000
17	Land Purchases	AC	5	$20,000.00	$100,000	$20,000.00	$100,000
			Sum =		$3,782,000		$3,132,000
			20% Contingency =		$756,000		$626,000
			Subtotal =		$4,538,000		$3,758,000
			10% Legal and Admin. =		$454,000		$376,000
			15% Engineering =		$681,000		$564,000
			Total =		$5,673,000		$4,698,000
			Low Estimate (-10%)		$5,106,000		$4,228,000
			High Estimate (+10%) =		$6,240,000		$5,168,000

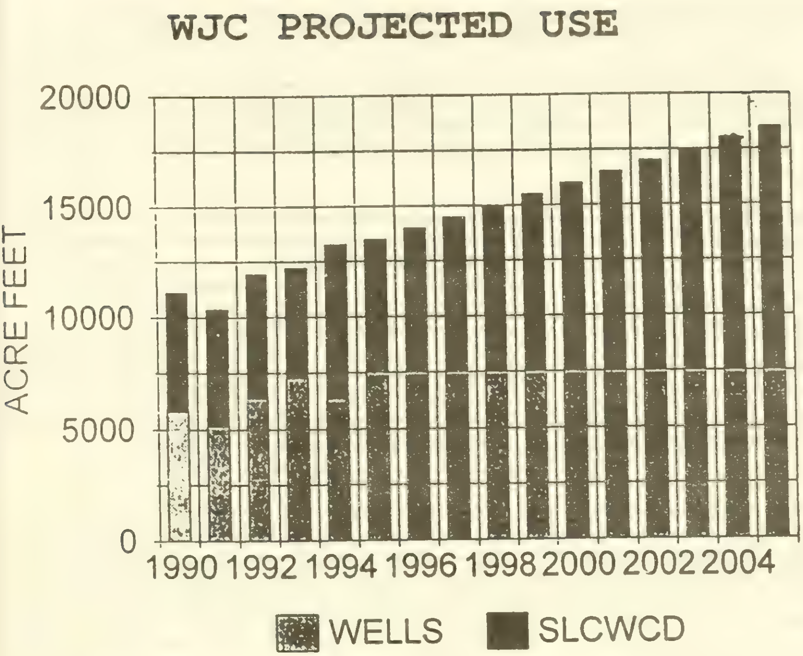
Table 7. Cost Comparison

Water Supply	Cost per acre-foot
West Jordan Culinary Water[1]	$100
SLCWCD[2]	$240
Water Reuse[3] (with "Cast-in-Place" Type Filters)	$280 - $390
Water Reuse[4] (with "Package" Type Filters)	$240 - $330

1) Cost provided by West Jordan
2) The cost of SLCWCD water varies depending upon the delivery location and pressure. A calculated average cost is listed in the Table. Calculations are provided in the Appendix D.
3) Option 2 with"cast-in-place" type filters and annual water sales of 1,400 to 1,750 acre-feet.
4) Option 2 with"package" type filters and annual water sales of 1,400 to 1,750 acre-feet.

The cost per acre-foot of reclaimed water could also be reduced by selling more reclaimed water at off-peak hours to industrial users or to other reuse alternatives. Grants or subsidized financing will also reduce West Jordan's cost for a water reuse project. These alternatives should be investigated more fully.

Future changes in either the cost or availability of the City's groundwater, or in the cost of SLCWCD water may accelerate the need to consider water reuse. West Jordan has recognized that they are currently reaching the limits of their groundwater sources and will need to acquire new water sources or purchase additional water from SLCWCD, or both. West Jordan's water use history, projected future water use, and a memorandum documenting the increasing demands on the City's water system are included in Appendix D. SLCWCD projects that their wholesale water rates will increase 2% to 3% per year for the next 8 to 10 years. After 8 to 10 years, SLCWCD will need to expand the capacity of their aqueduct and treatment facilities to meet increasing water demands in the Salt Lake Valley. SLCWCD expects these improvements to be financed by bonding and higher wholesale water rates will probably be needed to pay for bond repayment. SLCWCD has not yet estimated the magnitude of the water rate increase associated with the future expansion of their aqueduct and water treatment plant, but a significant increase in wholesale water rates is likely.



LETTER FROM DAVID G. OVARD, GENERAL MANAGER, SALT LAKE COUNTY WATER CONSERVANCY DISTRICT, WEST JORDAN, UT

July 14, 1995

The Honorable Robert Bennett
427 Dirksen Senate Office Building
U. S. Senate
Washington, DC 20510

SUBJECT: City of West Jordan Water Reuse Project

Dear Senator Bennett:

On behalf of the Salt Lake County Water Conservancy District (SLCWCD), I wish to convey our support for the City of West Jordan water reuse project. SLCWCD will reach the limit of its system capacity for peak deliveries soon after the year 2005. Considering the large capital investment necessary to expand our system, projects such as West Jordan's can have considerable effect on delaying and possibly reducing the need for an expansion. Over half of our system capacity is devoted to outdoor irrigation. Water reuse and other secondary systems used for irrigation of parks, golf courses, and even private landscaping can reduce the peak loading on our system.

PREPARED STATEMENT OF DELBERT HAVATONE, CHAIRMAN, HUALAPAI TRIBAL COUNCIL

Mr. Chairman and Members of the Subcommittee, the Hualapai Tribe of northern Arizona has been fortunate in the last decade to receive annual technical and financial assistance from the Bureau of Reclamation in our efforts to achieve self-determination. We ask to be considered in Fiscal Year 1997 for additional project funds totaling $1,620,000.

Our Reservation occupies over a million acres on the south rim of the Grand Canyon of the Colorado River. Our deserts, forests and canyons are rich in natural resources, in the potential for tourism, and the area has considerable capacity for certain kinds of agricultural and aquacultural enterprises. Limitations on those developments are defined almost exclusively by arid conditions, our vulnerability to prolonged drought, and the need for delivery of water and power within Reservation boundaries.

The Secretary of the Interior in exercising Trust Responsibility for Indian Tribes is justified, and indeed obligated, to provide technical expertise and direction for potential solutions to our water resources dilemma. Within the Department, the Bureau of Reclamation has demonstrated a willingness, ability and enthusiasm to serve this Trust function.

Projects undertaken jointly with the Bureau have typically included management training for Tribal program managers and training in science and specific job skills for our young Native work force. As a result, the Bureau funds spent on specific tasks have moved us steadily forward toward our long term economic goals. These funds have also been utilized to permanently expand our reservoir of skills, creating permanent jobs which are marketable to units of government and the private sector in the Four Corners region.

The Tribe's primary focus in the remainder of this decade is development of Grand Canyon West, a destination tourist resort overlooking the National Park that will attract national and international visitors to Las Vegas, Phoenix and the National Park System units of the Four Corners region. The Reservation already serves as the primary take-out for tens of thousands of river runners attracted to Grand Canyon National Park each year and provides the only road access within the Park to river's edge along the Colorado River. Services at Grand Canyon West are currently limited to traditional Indian meals prepared at the location for tourists flown in by air charter concessionaires.

Project: **Hualapai Reservation Water Assessment - $1,300,000**
(General Investigations Account)

The purpose of this project is to develop environmentally sensitive and sustainable use of water resources on the Hualapai Reservation. Results of the assessment will also allow the Tribe to join with others in the region in addressing a integrated water resource management plan on a watershed basis.

The location of the Hualapai Reservation on the Colorado Plateau is subject to a severe environment with cold winters, hot summers, scant rainfall and high evaporation rates -- conditions which have confined the Tribe at subsistence levels since our forefathers were restricted within these boundaries by federal Executive Order in 1883. Improvement of the Hualapai economy is entirely dependent upon the planning and construction of a delivery system for the limited amounts of water immediately available to us and identification of future sources to permit further economic growth.

Existing water supply wells are pump stations located on local perched aquifers which have limited yield. Future water supplies are likely to depend upon tapping into deeper groundwater systems which now drain into the Grand Canyon. These aquifers exist within complex geology at depths of 3,000 to 5,000 feet. Other options may exist. The Water Assessment would allow the Tribe to define and map existing facilities, to determine the quality and quantity of additional water available to the Tribe, including groundwater systems not now utilized, and to estimate and plan for future water needs.

The final product from this study will be a ten-year water plan for the Hualapai Reservation. This plan will integrate the study results, including data from rain, snow and stream gauges, well data, aquifer tests, geologic and geophysical surveys, water quality samplings, and water use data.

Our resource managers are also able to integrate into the water plan other relevant data from agricultural, forestry, wildlife and cultural surveys completed by the Tribe over the course of the Glen Canyon/Grand Canyon science studies that began in the early 1980's. We will utilize a Geographic Information System (GIS) that was loaned to the Tribe some years ago by the Bureau of Reclamation to assist us in fulfilling agency obligations for ongoing monitoring of the Grand Canyon ecosystem. This global positioning system is a powerful mapping tool that will enable our staff to manipulate water data in the context of its relevancy to development of other Hualapai resources. The results will be maintained in a layered data storage facility.

The information from this water assessment will ultimately be used by Tribal planners, providing the Tribe with a coherent overview of water supply vs. projected needs. In particular we will have the data necessary to identify terrain across which the delivery of available water supplies would not be feasible because of engineering or economic factors.

Without this blueprint, we are at great risk in undertaking certain projects, such as the Grand Canyon West enterprise. While we have identified its great economic potential to the Tribe, we must know that associated water needs can be met and are sustainable.

Project: **Solar-Powered Water Pipeline - $320,000**
(Native American Affairs Program/Indian Water Rights Settlement Activities Account and the Drainage and Minor Construction Account)

The Hualapai Natural Resources Department secured funding from the Bureau in 1992 to construct an eleven-mile pipeline from the Westwater Wall on the west side of the Reservation to provide water for wildlife and cattle in this arid region, relieving an eight-year drought cycle. In addition to steady investment of Hualapai-generated funds in each year of its term of construction, the first phase of the project has been brought to completion with an investment of $200,000 by the U.S. Department of Energy.

The pipeline was initially designed to extend yet another 15 miles to serve the Tribe's Grand Canyon West tourism enterprise on the rim of the Grand Canyon, including the satellite community of Hualapai families who are now temporary workers. Eventually, they will work and live at the resort on a permanent basis. Along its route,, the pipeline extension will also deliver water to the remaining westside wildlife and domestic grazing areas not served by the first phase of construction.

Limited tourist services and ongoing construction at the Grand Canyon West enterprise have been sustained to date by daily deliveries of water by truck. As the scope of construction and visitor services has expanded, it has become increasingly difficult to meet the demand for water by such primitive means. Without reliable delivery by pipeline, we will soon face delays in construction, if not the need for a shutdown.

The extension of the water delivery system, as planned, is the most feasible means of meeting this need. The Tribe is prepared to lay additional pipe and install solar panels upon receipt of funding. Further, the materials used in construction of the first phase, and which will be utilized in construction of the extension, are capable of sustaining service over a projected 100-year project life. The design also allows the Tribe to build in additional capacity as needed.

In other words, this is not a short term solution to meeting water needs at Grand Canyon West. The capacity and materials in this pipeline are designed to meet long term agricultural and economic development needs anticipated by our master plan. Once fully operational, this solar-powered pipeline will be the longest of its kind in the United States and serve as a model for meeting the energy and power needs of remote areas of the arid Southwest.

Conclusion

Funding for these two projects represents significant and steady progress in Fiscal Year 1997 toward our long term goals for self determination. These projects are both essential to the Tribe's effort to make efficient and sustainable use of its natural and human resource potential. Both contribute toward creating new economic resources within the Reservation through development of our tourism potential.

The Bureau of Reclamation has encouraged and assisted us in achieving these goals for many years now, and we hope to continue that partnership in Fiscal Year 1997. We are very grateful to the Bureau, both for its own direct involvement in Tribal development and for the doors BOR leaders have opened to other federal agencies who chose to join in highly successful intergovernmental ventures undertaken on the Hualapai Reservation over the last decade.

Thank you, Mr. Chairman and members of the subcommittee, for your consideration of our request for Fiscal Year 1997.

PREPARED STATEMENT OF THE SOUTHERN UTE GRASSROOTS ORGANIZATION, HESPERUS, CO

The Southern Ute Grassroots Organization (SUGO) represents more than 200 Southern Ute and Ute Mountain Ute tribal members in Colorado and is strongly supported by much larger numbers. SUGO is an all-Ute organization patterned after our **traditional** form of government. We are not an environmental group. Our leadership includes elected Tribal officials, many former elected officials, and a substantial majority of the Southern Ute Tribe's most revered and respected Elders. SUGO's primary objective is to bring about changes in tribal government and decision making that will make it more inclusive and responsive to the general membership.

We strongly oppose the U.S. Bureau of Reclamation's Animas-La Plata water project (ALP), and ask you to cut all funding for ALP in fiscal year 1997. This project, which would cost federal taxpayers $480 million, survives today only because of its link to our tribal water rights. **ALP is a hoax that will not benefit our people; instead, it will enrich a small number of non-Indian farmers and developers at enormous taxpayer expense.** Please consider the following:

- ALP is a hollow promise to our tribes: it would deliver no water to our reservations because federal funds will build only subsidized non-Indian delivery facilities. **ALP's so-called water supply for our tribes would be over ten miles from the nearest Ute land.**

- Water from ALP is currently estimated to cost our tribes roughly $5,000 per acre/foot, an annualized cost equivalent to $300 per acre/foot. This cost does not include delivery facilities to our reservations, which would be an additional expense. No uses available to us can generate enough revenue to pay these costs. **ALP water is too expensive for us to ever use.**

- ALP has negative economic value: it would return only 36 cents for each taxpayer dollar invested. ALP also would have massive impacts on the natural and cultural environment of our homeland. We oppose this waste of our taxes and environment.

- For over twenty-five years, the Southern Ute Tribe has been represented by an attorney who also represents the non-Indians set to get massive federal subsidies from ALP. This conflict of interest has harmed our tribe by preventing examination of better alternatives. **ALP supporters are using our tribes to get subsidies, not working on our behalf.**

The depth of SUGO's Ute Indian support has been objectively demonstrated. In 1989, SUGO leaders forced a recall election against the present Southern Ute Tribal Chairman and others on the Tribal council who support exchanging our tribal water rights for ALP. Official tribal support for ALP remains today only because the recall election resulted in a tie vote (182-182) that favored the incumbents. Since that recall election, **SUGO Chairman Ray Frost has been consistently re-elected to the Southern Ute Tribal Council, most recently in December of 1995, on aggressive anti-ALP platforms.**

This fall, Southern Ute Tribal Chairman Leonard Burch, the leading ALP supporter within our tribe for more than two decades, must step down because of term limitations. Opponents of ALP within the tribe plan a strong bid for the vacant Tribal Chair and other open Tribal

Council seats. **Thus, within six months our official tribal position on ALP may very well switch to opposition.**

The Bureau of Reclamation has already formally acknowledged an anticipatory breach of contract with our tribes since it cannot construct ALP in time to comply with the requirements of the Colorado Ute Indian Water Rights Settlement Act under any possible circumstances. This admission triggers a Ute Indian exit clause in the Settlement Act that allows our tribes to abandon ALP and seek an alternative water rights settlement. If a switch in Tribal leadership does occur, our tribes could exercise this right to reject ALP, notwithstanding federal investments in the project up to that date. **No private developer would invest a dime in this project given these political and legal uncertainties.**

We believe alternatives to ALP can better serve the interests of our tribes. In fact, on February 23, 1995, SUGO presented an alternatives package of its own to the Bureau of Reclamation. SUGO's proposals are patterned after the re-negotiated water rights settlement approved by Congress in 1990 for our Northern Ute cousins in Utah. **The alternatives that we propose would provide greater benefits to our tribes at less cost to taxpayers and the environment.** The Bureau of Reclamation has not evaluated any such alternatives.

Congress should refuse to provide further funds for ALP until the Bureau of Reclamation thoroughly studies other alternatives. The Bureau of Reclamation has ample funds remaining from previous years to conduct such a study.

In hunting buffalo, our ancestors often employed a strategy of stampeding a herd over a cliff. Once the herd was in motion, the pitfalls that would have stopped or swayed individual animals or groups of animals became invisible.

This is the strategy of those who support ALP. In the past, Congress has been among those who have stumbled blindly in support of this project. On behalf of our members, we ask you to pause, let the dust clear, and put a stop to this fundamentally flawed project. **Please vote to cut all funds for the Animas-La Plata water project from the fiscal year '97 Energy and Water Appropriations bill.**

Ray C. Frost

Ray C. Frost
Chairman, SUGO

The undersigned are the Southern Ute Grassroots Organization's directing Council of Elders, who also constitute the Southern Ute Tribe's Elders advisory committee, an institution of traditional Tribal government which provides independent advice and direction to the Southern Ute Tribal Council:

Annabelle T. Eagle

Annabelle T. Eagle
Elder

Bertha Grove

Bertha Grove
Elder

Essie Kent
Essie Kent
Elder

Annetta Frost
Anetta Frost
Elder

Anna Marie Howe Scott
Anna Marie Howe Scott
Elder

Floy Box
Floy Box
Elder

Alice Neash
Alice Neash
Elder

PREPARED STATEMENT OF GOV. FIFE SYMINGTON, STATE OF ARIZONA

This testimony submitted on behalf of the people of the State of Arizona asks for continued support of funding for the various water related projects and programs which affect the State. Construction projects underway by the Bureau of Reclamation include: the Central Arizona Project; safety of dams work; and the Colorado River Basin Salinity Control Program. Construction projects by the Corps of Engineers include the Clifton, Rillito River and Tucson Drainage Flood Control Projects. Additionally, the testimony addresses the various planning and operation and maintenance programs by both the Bureau of Reclamation and Corps of Engineers.

Because the President has not yet released a proposed budget for Fiscal Year 1997, Arizona has not had the opportunity to review specific funding recommendations. This testimony supports appropriation levels that adequately fund the projects and programs within Arizona under consideration by this Subcommittee. Arizona wishes to reserve the right to supplement this testimony after we have had the opportunity to review the President's budget.

CENTRAL ARIZONA PROJECT

The Central Arizona Project (CAP) continues to be the highest priority water supply project in Arizona. The importance of this project for the future of the State of Arizona cannot be overstated. The reliable delivery of Colorado River water to users in central and southern Arizona is essential to meet the demands of an ever increasing population.

There has been some very significant activity related to the Central Arizona Project since I appeared before this Subcommittee last year. As I have reported to you before, in 1993 I appointed the 34 member Governor's Central Arizona Project Advisory Committee to investigate methods that will enable Arizona to better utilize its CAP supplies. The Committee made several recommendations for action addressing a variety of issues facing the CAP. Last year I informed you that the Arizona Legislature had passed some of these measures, and I signed them into law. However, one of the most ambitious of the Committee's recommendations, a suggestion to replenish Arizona's depleted aquifers with water delivered by the CAP, had not yet been brought before the Legislature. Over the past year Arizona's leaders have worked to craft a plan that would bring this idea to fruition.

I am pleased to report to you today that vital legislation has been introduced in the Arizona Legislature with my strong support which establishes a mechanism to increase groundwater recharge of CAP delivered water. This legislation will enable Arizona to meet many of its long-term water policy challenges by providing the opportunity to do the following: firm-up CAP water supplies by storing water for use when drought on the Colorado River reduces supplies delivered by the CAP, enhance our ability to meet our water management goals, and assist with the settlement of Indian tribe claims to water rights in Arizona.

In addition, the legislation provides a mechanism that can be used to facilitate short-term interstate water transfers with California and Nevada. This action may assist these states to meet their interim water needs while enhancing groundwater storage within Arizona.

Though it is still under consideration, the legislation is widely recognized as promoting the best interests of the State. This legislation demonstrates the strong and united support in Arizona for the successful operation of the Central Arizona Project and full utilization of our Colorado River entitlement.

The success of the Central Arizona Project would not have been possible without consistent levels of Congressional appropriations which have allowed the Bureau of Reclamation to maintain its construction. schedule for the Project. These appropriations have fulfilled the Congressional commitment made in 1968 when the Central Arizona Project was authorized and renewed in 1986 when a comprehensive cost sharing agreement was executed among several entities in Arizona and the U.S. Department of the Interior. We appreciate your past support, and we hope you will look favorably on the CAP related activities that continue to require funding.

Arizona hopes to see a FY 1997 appropriation from the Lower Colorado River Basin Development fund for Central Arizona Project facilities of about $72,000,000. These funds will support construction activity principally focused in six areas: continued work on the damaged siphons, awarding facility relocations and site improvement contracts for Waddell Dam, close out work on enlarged Roosevelt Dam, continued studies associated with the Tucson aqueduct, continued design and construction of Indian delivery systems, and the continued construction of sulfur dioxide scrubbers for the Navajo Generating Station.

The budget for the Hayden-Rhodes Division of the Central Arizona Project Aqueduct covers a number of activities. The most important activity is the continued replacement of siphons. The Central Arizona Project now provides water for a number of cities in central and southern Arizona. That supply must be reliable with a minimum chance of interruption. It is essential that faulty siphons on the aqueduct be replaced as soon as possible. In order to fund completion of existing contract closeouts and for administration of claims, the Bureau of Reclamation's budget should contain about $3,400,000. The Central Arizona Water Conservation District will fund the majority of the continuing siphon replacement work and expects to request federal reimbursement at a later date.

For the Regulatory Storage Division of the Central Arizona Project, the bulk of work will be on Roosevelt and New Waddell Dams. These two regulatory features require about $7,100,000 which will be used primarily for completion of contracts and, in the case of enlarged Roosevelt Dam, for the closeout of the prime contract for the dam. The funding estimate also includes money for relocation of facilities at New Waddell and recreational development at both New Waddell and Roosevelt. Completing these two regulatory dams as quickly as possible is important for safety of dams, water conservation and flood control.

The budget for the Indian water delivery and distribution system covers a number of ongoing projects intended to assure that these distribution systems are constructed so that Indian communities with contracts for Central Arizona Project water can put this renewable surface supply to use. One of the key water management objectives in Arizona is to put as much CAP water to use as possible. The Indian communities are major contractors of the supply and must be provided with the facilities to assure maximum use of this renewable water supply.

The Navajo Generating Station near Page, Arizona is an important feature of the Central Arizona Project. Approximately 24 percent of this power plant is dedicated to the Central Arizona Project for the purpose of providing power to the 14 pumping stations along the three aqueducts on the Project. To meet visibility requirements of clean air standards, the Department of the Interior, the Environmental Protection Agency, the Salt River Project, the State of Arizona and the Grand Canyon Trust agreed that sulfur dioxide scrubbers, which reduce sulfur dioxide to less than 10% of what is allowable for most states, would be installed at the generating station. For FY 1997, the federal government's share of this effort is about $26,000,000.

Terminal storage is critical to the City of Tucson's ability to fully utilize its CAP supply. The City is committing significant resources to assure that CAP water will ultimately be directly delivered to a substantial portion of its service area. However, without terminal storage and the reliability that it will bring, Tucson cannot prudently invest in the enhanced treatment technology needed to allow for direct delivery of CAP water. As the City commits millions of its ratepayers' dollars to solve the CAP issues, I encourage this Subcommittee to continue to fund the Bureau's planning and environmental work related to terminal storage. We are requesting that approximately $500,000 be placed in the Bureau's budget to continue environmental processes for Tucson's CAP terminal storage.

SAFETY OF DAMS

We hope to see sufficient funding in the FY 1997 budget for the Bureau of Reclamation to continue construction activities for safety of dams work in Arizona. Three dams located on the Salt and Verde Rivers have safety deficiencies and are located upstream from the Phoenix metropolitan area where over two million Arizonans reside. The comprehensive Plan 6 Cost Sharing Agreement executed in 1986 provides that the Salt River Project will pay for a portion of the necessary repairs on these dams. Safety of dams construction work is scheduled for Horseshoe and Bartlett Dams on the Verde River. A total of about $3,400,000 should be budgeted for these two dams. Additionally, $5,000,000 is necessary to fund scheduled safety of dams work associated with the enlargement of Roosevelt Dam. The Salt River Project will contribute 15 percent of the cost for the safety of dams projects related to the three dams.

In addition to the work on the Salt and Verde River dams pursuant to the Plan 6 Cost Sharing Agreement, construction is scheduled to be completed on Coolidge Dam, a feature of the San Carlos Irrigation Project. This dam, which is owned and operated by the Bureau of Indian Affairs, has been identified as top priority among those in the United States needing repairs to insure the safety of the people and property below the dam. We would like to see $200,000 be budgeted for this effort.

It is essential that needed safety of dams funds be appropriated to ensure that construction is completed on time and concerns over the integrity of all of these structures can be eliminated.

OTHER BUREAU OF RECLAMATION PROJECTS

The Colorado River constitutes the largest source of long-term renewable surface water supplies available to the State of Arizona. With full use of the Central Arizona Project, the Colorado River will provide over 60 percent of Arizona's long-term water supply. Therefore, Arizona is very concerned about the future water quality of this essential supply and supports the Bureau of Reclamation's ongoing Colorado River water quality improvement program authorized under Title II of the Colorado River Basin Salinity Control Act. Title II established a program to respond to salinity control needs of Colorado River water users in the United States in compliance with the Clean Water Act. This program is cost-shared, with the states providing 25 to 30 percent of the cost of project facilities and operation and maintenance costs.

Arizona and the other Colorado River basin states are concerned about receiving sufficient federal appropriations for the salinity control program. About $11,500,000 is needed to proceed with the plan of implementation, which will allow for compliance with established numeric criteria and associated water quality standards. Arizona also supports funding about $2,300,000 for the Yuma Desalting Plant Operation.

Arizona would appreciate the Bureau of Reclamation continuing its commitment to the conservation of endangered species in the Lower Colorado River region. Arizona urges continued appropriations for the Bureau of Reclamation's participation in the Lake Mohave *Native Fish Work Group* activities ($600,000), and other activities within Arizona for a total commitment of about $3,000,000. This figure does not include Endangered Species Act and other environmental programs funded under the Central Arizona Project.

Arizona requests continued appropriations for Bureau-wide funding ($1.5 million) of endangered species programs made available through the National Fish and Wildlife Foundation, particularly the cost-share funding of "interim conservation measures" under the *Lower Colorado River Multi-Species Conservation Program* (MSCP).

Arizona is pleased to note that the current MSCP effort is an excellent example of a cooperative endangered species effort, formalized in a Memorandum of Agreement, involving the States of Arizona, California, and Nevada, Lower Colorado River Indian Tribes, and the Bureau of Reclamation, U.S. Fish and Wildlife Service, National Park Service, and the Bureau of Land Management. The state-initiated MSCP is the direct result of the 1994 basin-wide critical habitat designation for four listed endangered fishes by the U.S. Fish and Wildlife Service. Because of its extensive responsibility for operation of the facilities on the River and the Secretary's authority to contract for uses of that supply, it is essential that the Bureau of Reclamation be a major participant in the continued development of the MSCP.

We are also requesting approximately $7,000,000 in federal funding for the Southern Arizona Water Rights Settlement Act. This funding will help the Tohono O'Odham Nation to take and use their CAP water. This funding will be used for bank stabilization of existing farms at San Xavier and to pay for delivery and distribution systems for new farms at Schuk Toak.

Our state's economic success and future prosperity are tied to the availability of water and the success of federal reclamation and water resources projects that this subcommittee has been so helpful in funding. These are massive projects that have altered the landscape and stimulated economic development in our state. Many of these projects are now nearing completion and we are looking more to fine tune the projects to address impacts resulting from redirecting and channelizing our water resources to promote economic growth.

For example, the City of Phoenix and the surrounding communities that participate in our Sub Regional Operations Group (SROG) are currently working with the Bureau of Reclamation to help restore a nine mile segment of the bed of the Salt River in the southwestern corner of the City. This project, called the Tres Rios Demonstration Project, is fully authorized and ready to move forward. It is a 50/50 match program where local sponsors will match half of the federal funding. We ask a minimum $500,000 of federal funding, which will allow continuation of the demonstration project. We would also support an additional $500,000 that would allow Phoenix to begin preparation for construction of the full scale project. In addition, we request $1,000,000 of Reclamation funding for the Phoenix Wastewater Reuse Program. This is a 25% federal and 75% local cost sharing program under Title 16 of Public Law 102-575. Local sponsors are willing to provide $3,000,000.

CORPS OF ENGINEERS PROJECTS

In addition to the activities of the Bureau of Reclamation, Arizona has several ongoing Corps of Engineers' projects. Arizona hopes that adequate funding is appropriated for continued construction of the Clifton and Rillito River flood control projects and a new construction start for the Tucson Drainage project. In addition, a 1994 study by the Corps recommended the creation of a statewide flood warning system. We request that funds be designated in the Corps' budget for this purpose.

In recent years, Arizona has experienced many devastating floods. It is clearly important for us to continue to have an active flood control program in the state. The projects underway by the Corps of Engineers will add significantly to our flood control capability. It is critical that the United States continue funding these essential projects.

In addition to the construction, operation and maintenance activities of the Corps of Engineers, general investigation studies must also continue to be funded. Studies necessary to be funded include the Alamo Lake study, the Rio Salado study, the North Scottsdale Drainage Area Study, Tortolita Drainage Area study, the Rio De Flag study and the Santa Cruz Basin study.

In cooperation with the City of Tempe, Phoenix is pursuing a long-term restoration of the Salt River basin near downtown Phoenix and Tempe. The Rio Salado project is currently in the feasibility phase and requires an additional $500,000 to keep the project on schedule in time to have a completed feasibility study by the spring of 1998. To assist in the completion of the feasibility study, we request that the Committee appropriate $1,500,000 under the Corps' Research and Development program. These funds will allow for the evaluation of wetlands creation technology adjacent to Sky Harbor Airport in order to demonstrate the City's ability to regenerate wetlands in an arid environment in a way that minimizes adverse impact on airport operations.

In summary, the State urges this Subcommittee's continued support for funding for water-related projects in Arizona. The Central Arizona Project with related safety of dams and Indian water distribution system needs is at the top of the State's list with a total request of about $87,000,000. Additionally, the budget for the Colorado River Basin Salinity Control Project must be continued. The Corps of Engineers' budget is also necessary for continued flood control activities in the state with an additional request of funding for six needed studies.

Thank you for your attention to these very important matters.

PREPARED STATEMENT OF GRADY GAMMAGE, JR., PRESIDENT, BOARD OF DIRECTORS, CENTRAL ARIZONA WATER CONSERVATION DISTRICT

Mr. Chairman, I am pleased to present testimony on behalf of the Central Arizona Water Conservation District in support of appropriations for the Central Arizona Project.

The Central Arizona Project ("CAP" or the "Project") is Arizona's lifeline, bringing vitally needed Colorado River water to the thirsty cities, farms, and Indian communities of central and southern Arizona. Construction of the Project began in 1973, with ground breaking for the Mark Wilmer Pumping Plant on Lake Havasu, near Parker Dam. Now, more than 20 years later, construction is nearly complete. The vision of the men and women who worked so tirelessly to obtain congressional authorization of the Project, and of those who have supported Project construction so faithfully over the years since passage of the Colorado River Basin Project Act in 1968, is about to be fully realized. These men and women are owed a great debt of gratitude by this and future generations of Arizonans.

This year marks the 25th anniversary of the formation of the Central Arizona Water Conservation District ("CAWCD"), the Arizona governmental body formed to operate the Central Arizona Project and repay its reimbursable costs. It also marks the 50th anniversary of the founding of the Central Arizona Project Association. This alliance of civic and community leaders helped lobby for and win congressional approval of the Project and has steadfastly supported the Project and its funding over the years. This year will also record the completion of 30 years of service in the House by Representative John Myers, Chairman and formerly Ranking Minority Member of the Subcommittee on Energy and Water Development of the House Appropriations Committee, and the completion of 30 years of service in the House by Representative Tom Bevill, Ranking Minority Member and formerly Chairman of the Subcommittee on Energy and Water Development of the House Appropriations Committee. Both are staunch supporters and loyal friends of the Central Arizona Project. We wish to take this opportunity to express our deepest gratitude for their continued support of CAP.

Mr. Chairman, with certain key exceptions, we ask that Congress fully fund the construction, operation, maintenance, and replacement activities that the Bureau of Reclamation will seek appropriations for when the Administration submits its Fiscal Year 1997 Budget. The exceptions are as follows: (1) we ask you to prohibit Bureau expenditures in support of the 1994 Fish and Wildlife Service biological opinion on CAP operation until the Bureau and the Service complete reconsultation on the significant new information we have provided them; (2) we ask you to prohibit Bureau expenditures related to preparing a comprehensive biological assessment of all uses of CAP water in the Tucson area, as demanded by the Fish and Wildlife Service; and (3) we ask you to prohibit further Bureau activities under the National Environmental Policy Act related to proposed transfers of CAP water service subcontracts between non-Indian CAP water users.

The balance of my testimony will elaborate on these three issues and one other major area of concern. Despite these concerns, we have much to be thankful for, in particular our friends here and at home who have made the dream of the Project a reality. We also have much to be proud of. The backbone of the Project's water delivery system is finished. The Bureau of Reclamation declared the CAP aqueduct system complete in October, 1993. The Project's regulatory storage division, consisting of New Waddell and Modified Roosevelt Dams, is expected to be declared complete later this year. When water deliveries began in 1985, they totalled about 12,000 acre-feet. Last year the Project delivered almost 1 million acre-feet of Colorado River water, two-thirds of the Project's average annual water supply.

Little remains to be constructed, but what remains cannot be left unfinished. The essential work includes the completion of sulfur dioxide scrubbers at the Navajo Generating Station at Page, Arizona, the principal source of power for pumping CAP water. These pollution control facilities are being installed under the Clean Air Act for the purpose of protecting visibility in Grand Canyon National Park. Some work also remains on the regulatory storage division of the Project. Also to be finished are the distribution works necessary to carry CAP water from the main aqueduct system to Indian beneficiaries of the Project. A number of construction deficiencies must also be corrected in order to assure that reliable water deliveries can continue to be made to all Project water users. CAWCD supports the appropriations necessary to correct these deficiencies and to bring the Project fully to completion.

CAWCD began repaying its share of the Project's construction costs in 1993. To date, CAWCD has repaid about $140 million in Project construction costs through the use of its property taxes, water service charges, and power sales revenues pledged to repayment. In addition, CAWCD has contributed $175 million of its taxpayer-funded reserves toward up-front funding of Project construction costs. CAWCD became responsible for operating and maintaining the Project aqueduct system in 1993, and has hired and trained a staff of 400 skilled workers to do that job. This year and next, in addition to its ordinary operation and maintenance expenses, CAWCD will advance more than $27 million of its taxpayer reserves to replace and repair large underground siphons which are part of the CAP aqueduct system. Unfortunately, just before the Bureau declared the CAP aqueduct system complete, it found these Project features to be in a hopeless state of deterioration. The fact that they must now be repaired or replaced at substantial additional cost remains a major source of dispute between CAWCD and the Bureau of Reclamation.

The distribution systems necessary to deliver water from the main CAP aqueduct system to points of use have largely been completed for non-Indian water users. However, the construction of Indian distribution systems has seriously lagged. Ten Arizona Indian tribes have contracted directly with the United States for delivery of CAP water, and yet only one, the Ak-Chin Indian Community, is actually receiving Project water. CAWCD believes that completion of Indian distribution systems is long overdue. We have been told by Reclamation that such construction can be completed within the existing limits on CAP appropriations. Arizona's

Native Americans deserve to receive delivery of their share of Project water. We therefore fully support federal appropriations necessary to complete CAP Indian distribution systems.

The significant accomplishments of the last several years and the fact that the Project is nearly complete are sources of pride for CAWCD, its staff, and its governing Board. However, four significant problems have arisen and remain unresolved.

1. Last year, I reported that CAWCD and the Bureau of Reclamation had reached an agreement in concept to resolve all significant disputes regarding Project costs and construction deficiencies. I outlined that agreement in my testimony of April 3, 1995, and told you that the parties were jointly engaged in drafting a document to embody that agreement. CAWCD worked diligently and in good faith with the Bureau for over 18 months in an effort to do just that. I am sorry to report, however, that our efforts were fruitless. In June 1995, on the eve of signing an agreement in principle with CAWCD, the Secretary of the Interior decided not to attend the signing ceremony, and later advised us that he would not execute the agreement as drafted. We had no choice but to file a lawsuit against the United States in July, 1995 in an effort to resolve the matters in dispute. The United States subsequently filed suit as well, and deliberately expanded the issues in litigation.

The major issues in dispute include the following:

(a) The amount of CAWCD's construction cost repayment obligation for the CAP water supply system and regulatory storage is disputed. CAWCD contends that this obligation cannot exceed $1.781 billion under CAWCD's Repayment Contract with the United States. In the lawsuit, the United States claims that the contractual limit on CAWCD's repayment obligation is $2.0 billion. However, the actual bills the United States has sent to CAWCD for CAP construction costs are based on an estimated repayment obligation in excess of $2.2 billion. Incredibly, CAWCD is being billed by the Bureau for more than the United States reasonably believes it can claim in its own complaint.

(b) The amount of the United States' obligation for the annual operation, maintenance, and replacement ("OM&R") costs of the Project is also in dispute. The United States has acquired or reserved for federal purposes about 43% of the Project's water supply, but is paying less than 8% of the Project's annual OM&R costs, refuses to pay more, and argues that it should pay even less.

(c) The United States' responsibility to correct construction defects and deficiencies is at issue. The Bureau of Reclamation was responsible for constructing the Project, and remains responsible for completing unfinished Project features. When the Bureau declared the Project's water supply system complete in 1993, however, it presented CAWCD with a lengthy list of construction deficiencies. The Bureau pledged to correct these deficiencies. Now, because the Bureau has exceeded the contractual limit on CAWCD's construction cost repayment obligation, the Bureau refuses to correct the deficiencies and insists that they are CAWCD's responsibility.

(d) Under long standing Reclamation law, policy, and practice, revenues from the sale of project power have been used to assist in repaying project construction costs. This is also provided for in the Colorado River Basin Project Act, the CAP authorizing legislation. In addition, when Congress enacted the Hoover Power Plant Act of 1984, it provided for the creation of certain revenues from the sale of power from the Boulder Canyon Project and the sale of surplus power from the Navajo Generating Station and dedicated those revenues to the payment of CAP construction costs and the repayment of CAWCD's construction cost repayment obligation. CAWCD's 1988 Repayment Contract with the United States also requires that these revenues be applied by the United States against CAWCD's

> repayment obligation. Despite these provisions of law and contract and its own historic practices, the Bureau of Reclamation refuses to apply these revenues to repayment as intended, and has instead diverted them to other purposes.

We cannot predict when the litigation concerning these matters will be resolved, or its outcome.

2. Another problem that has not yet become the subject of litigation concerns the extent of CAWCD's responsibility for mitigating the perceived effects of CAP water deliveries on endangered species. The Fish and Wildlife Service recently concluded that the operation of the CAP "jeopardizes" endangered native fish in the Gila River Basin. The jeopardy opinion is premised on the far-fetched theory that non-native fish will escape from the CAP aqueduct system, migrate many miles upstream over dry river beds, surmount major dams and other obstacles in their path, and eventually make their way to the habitat of native fish located far from the CAP service area. The Fish and Wildlife Service and other game management agencies have for many years intentionally stocked millions of these same non-native fish in the very streams and reservoirs where the native fish live, seriously damaging the habitat of the native fish and depleting their numbers. The jeopardy opinion totally ignores the impact of these earlier, detrimental actions, and instead attempts to attribute the endangerment of the remaining native fish to the operation of the Central Arizona Project.

The jeopardy opinion is totally illogical, contrary to the Service's earlier actions, and unsupported by the facts. Despite this, the Fish and Wildlife Service insists that CAWCD, its taxpayers, and its water users must incur millions of dollars in additional costs to mitigate the imagined impacts of CAP water deliveries on native fish. These costs include payments of $500,000 a year each year for 25 years to the Fish and Wildlife Service to finance the Service's favorite native fish research and recovery projects. The current plan calls for this money to be obtained initially from CAP appropriations and transferred by the Bureau of Reclamation to the Fish and Wildlife Service.

CAWCD was not permitted to participate in the consultations between the Bureau of Reclamation and the Fish and Wildlife Service that led to this jeopardy opinion, but will end up paying most of the bill if it is implemented. CAWCD has submitted a detailed report to the Bureau of Reclamation and the Fish and Wildlife Service which provides significant scientific information ignored by the Fish and Wildlife Service, refuting the conclusions of the jeopardy opinion. CAWCD has asked that its report be considered and that the jeopardy finding be withdrawn. So far, CAWCD's request has been ignored. CAWCD supports appropriations to complete the Project, but requests that none of these appropriations be permitted to be spent to implement the actions required by this biological opinion unless and until consultations between the Bureau of Reclamation and the Fish and Wildlife Service are reopened, the jeopardy conclusion is withdrawn, and the biological opinion is seriously reconsidered in light of the information contained in CAWCD's report.

3. A similar problem has arisen with respect to proposed water deliveries to the Tucson area. The Secretary of the Interior announced his allocations of CAP water in 1983 after a lengthy and involved environmental process. CAWCD began entering into water service subcontracts with water users shortly thereafter. Now, over ten years have passed, construction of the aqueduct system is complete, and many entities, including the City of Tucson, have entered into water service subcontracts and made enormous investments in facilities to treat and distribute CAP water. Some also plan to recharge a portion of their CAP water supplies to replenish groundwater supplies and store additional water for future use. The Fish and Wildlife Service recently announced that it must review all uses of CAP water in the Santa Cruz River Basin near Tucson for compliance with the Endangered Species Act, even if those uses involve wholly local decisions, are not funded by the federal government, and do not require federal permits. In preparation for this review, the Fish and Wildlife Service has asked the Bureau of Reclamation to prepare a comprehensive biological assessment of all proposed uses of CAP water in the Tucson area. This unwarranted intrusion into local water management decisions is intolerable. We ask that no money appropriated for the CAP be permitted to be spent to further the Fish and

Wildlife Service's request for this biological assessment or for additional review of the effects of CAP water use in the Santa Cruz River Basin.

4. Finally, CAWCD must express its concern regarding the recently announced decision of the Bureau of Reclamation to require review under the National Environmental Policy Act of transfers of CAP water service subcontracts from one non-Indian water user to another. These transfers will occur, for the most part, in the ordinary course of CAWCD's business, have never been a problem for the Bureau before, and are essential to rational water management. They involve entirely local water management decisions and entirely local economic considerations. They must continue to occur in a timely manner, and without large external costs. The Bureau of Reclamation reviewed the environmental impact of its original CAP water allocations and contracting decisions extensively. There is no rational basis for further environmental review of CAP water use in Arizona. We ask that any appropriations for Bureau environmental work prohibit the use of such appropriations for further environmental review of CAP water use in Arizona and make clear that such review is not required.

While these and other issues continue to confront us, we are confident that they will be resolved. We are admittedly frustrated by the continuing deterioration of our relationship with the Department of the Interior and the Bureau of Reclamation. We want to resolve our disputes with the Bureau regarding Project costs. We thought we had done so at the time of our visit here a year ago. We want to get on with the business of delivering Colorado River water to Arizona water users -- the purpose for which the Project was authorized and constructed. Unfortunately, the Bureau continues to demand that we pay more than what we agreed to pay in Project costs while at the same time interfering with our efforts to deliver Project water. Nevertheless, CAWCD is absolutely committed to paying its share of Project costs and to abiding by the decisions of the courts regarding the issues in litigation. We ask that you continue to support completion of the Project with your appropriations, and we pledge to continue to work with you to bring that goal to fruition.

PREPARED STATEMENT OF WILLIAM P. SCHRADER, PRESIDENT, SALT RIVER PROJECT

Mr. Chairman:

My name is William Schrader. I am President of Salt River Project (SRP) located in Tempe, Arizona. SRP comprises both the Salt River Project Agricultural Improvement and Power District and the Salt River Valley Water Users' Association . I am pleased to have the opportunity to submit this testimony on SRP's behalf.

Founded in 1903, SRP is the oldest multi-purpose reclamation project in the United States. It is the nation's third-largest public power utility and Arizona's largest water supplier. SRP is proud of its role in contributing to central Arizona's robust economy and its outstanding quality of life.

Many of the programs, projects, and activities within this subcommittee's jurisdiction directly affect SRP, its water and power customers, and the State of Arizona.

Through the years, this subcommittee has helped guide the wise and safe development of our nation's water and power resources, including those located -- like SRP's -- in arid regions of the West.

Your vision and support have made possible many initiatives to create a habitable and prosperous desert Southwest. This subcommittee has been a key partner in the development of our region, and we thank you for your efforts and congratulate you on your accomplishments.

At SRP, we are keenly aware of the historic budgetary decisions confronting this Congress, and also of the pressing time constraints imposed upon your actions. As a result, I will restrict my testimony to the issues most critical to SRP, and respectfully seek your favorable consideration of each.

Safety of Dams

Of principal interest to SRP at this time is the appropriation for fiscal year 1997 for certain Safety of Dams projects managed by the Bureau of Reclamation.

The six reservoirs within the SRP water supply and delivery system are maintained not only to furnish water, but also to realize conservation, hydroelectric power, recreational value, and flood control.

As evidenced in 1995 by devastating floods in California and severe floods in Arizona, particularly in the Verde River Valley, the need for improved flood control and sound dam construction along America's urban water ways is imperative.

One way this goal is being realized is through the work of the Reclamation Safety of Dams Act. As authorized by the 1984 amendments to this Act, four of the six dams on the SRP system have undergone, or are now undergoing, modifications to strengthen the structures and, in some cases, improve their capacity to control floods.

I am pleased to report that modifications on two of the four dams on SRP's system are substantially complete. All modifications to Stewart Mountain Dam on the Salt River were completed in April 1992, and structural modifications to Horseshoe Dam on the Verde River were completed in January, 1995.

The projects for which I seek appropriations today -- Bartlett Dam and Theodore Roosevelt Dam -- are nearing completion after several years of construction. The rededication of Roosevelt Dam is scheduled for April 12, 1996. The modifications will substantially enhance the structural integrity of dams located on the SRP system. They will improve the physical security of the people, property, and natural resources of the Phoenix metropolitan area, as well as help ensure a safe and reliable surface water supply for the Valley of the Sun for generations to come. In the absence of the President's FY97 budget request, SRP supports an appropriation of up to $15,500,000 for a continuation of Plan 6 activities. Funding at these levels should be sufficient to allow the Safety of Dams construction work to proceed on schedule. SRP will continue to meet its cost-sharing commitment made pursuant to the Safety of Dams Act.

Indian Water Rights Settlements

Timely settlement of Arizona Indian water rights claims is crucial. Arizona's water planning processes and its economic development will be undermined by uncertainty until Indian water rights claims are finally settled. The economic strength and stability of Arizona, and every other state, are fundamental to the prosperity of this nation. SRP continues to work closely and cooperatively with several tribes, the State of Arizona and the Department of the Interior toward acceptable settlements. The Department should be encouraged to continue its leadership role in moving pending negotiations toward completion. Accordingly, SRP requests that the subcommittee recommend sufficient appropriations to achieve these objectives through the Indian Water Rights Program of the Bureau of Reclamation.

SRP also wishes to express its continued support for the Central Arizona Project (CAP). Arizonans understand that the CAP represents an important link to the state's future. Water is a scarce and precious resource in Arizona's desert climate, and the CAP could help realize the state's hopes for economic security and the preservation of our unique quality of life.

Navajo Generating Station

SRP is pleased to report that construction on the Navajo Generating Station's (NGS) sulfur dioxide scrubber project is proceeding on schedule and according to budget.

Four utilities and the Federal government -- through the Bureau of Reclamation -- have interests in NGS, which is located in Arizona on the Navajo Nation near the city of Page. The Bureau of Reclamation owns a 24 percent share of the plant. SRP serves as plant manager.

To meet clean air standards and promote increased visibility at the Grand Canyon National Park, the Bureau of Reclamation, the Environmental Protection Agency, the State of Arizona, SRP, and the Grand Canyon Trust agreed in 1991 that sulfur dioxide scrubbers would be installed at NGS.

SRP requests that, in accordance with the Navajo Project Participation Agreement, the subcommittee recommend $26,000,000, the full amount of the Federal government's share of NGS capital improvements. These funds will provide for the cost of installing the scrubbers and other necessary capital additions to NGS and associated transmission systems.

Conclusion

Mr. Chairman, in conclusion, SRP understands that the subcommittee faces serious budgetary constraints in FY97 and must make hard choices in allocating available resources among competing priorities. We have taken this into consideration in choosing to limit our testimony to just a few important issues.

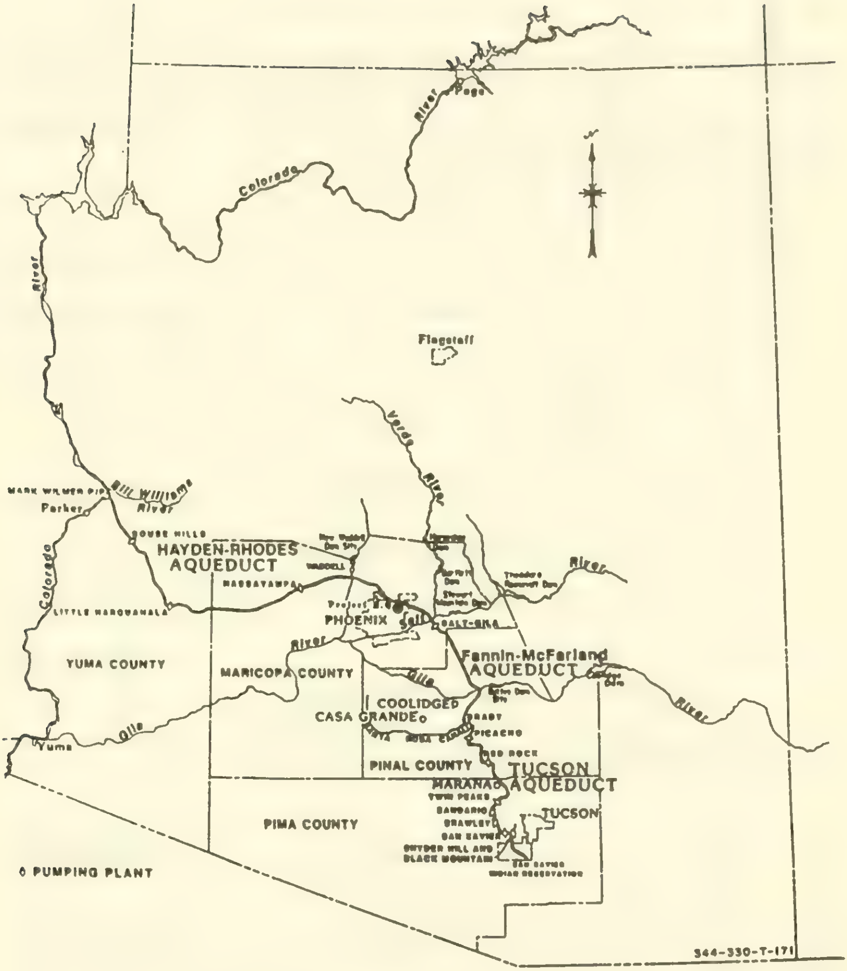
It bears emphasis that these are the most critical appropriations needs of SRP at this time, and that these issues further national goals and policies and merit your favorable consideration.

Thank you for the opportunity to submit this testimony.

PREPARED STATEMENT OF THE CENTRAL ARIZONA PROJECT ASSOCIATION

The Central Arizona Project Association, as part of its ongoing support for the Central Arizona Project, is pleased to present this Briefing Book in support of the Fiscal Year 1997 appropriations request for the Central Arizona Project. We wish to thank staff of the Phoenix Area Office, U.S. Bureau of Reclamation for their assistance, especially Assistant Project Manager Larry Morton, Tom Burbey, Chris Vinay and Jerri Tharp. We also wish to thank Sid Wilson, General Manager of the Central Arizona Water Conservation District, and Jim McIntyre of his staff for their assistance and ongoing support.

Robert S. Lynch
President


Page
River
Colorado
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Flagstaff
Verde
River
MARK WILMER P/P
Bill Williams
River
Parker
BOUSE HILLS
HAYDEN-RHODES
AQUEDUCT
WADDELL
HASSAYAMPA
Colorado
LITTLE HARQUAHALA
Project
PHOENIX
Salt
SALT-GILA
River
Theodore Roosevelt Dam
River
YUMA COUNTY
MARICOPA COUNTY
Gila
Fannin-McFarland
AQUEDUCT
COOLIDGE
CASA GRANDE
BRADY
PICACHO
River
Gila
Yuma
RED ROCK
PINAL COUNTY
TUCSON
AQUEDUCT
MARANA
TWIN PEAKS
SANDARIO
BRAWLEY
SAN XAVIER
SNYDER HILL AND
BLACK MOUNTAIN
SAN XAVIER
INDIAN RESERVATION
TUCSON
PIMA COUNTY
○ PUMPING PLANT
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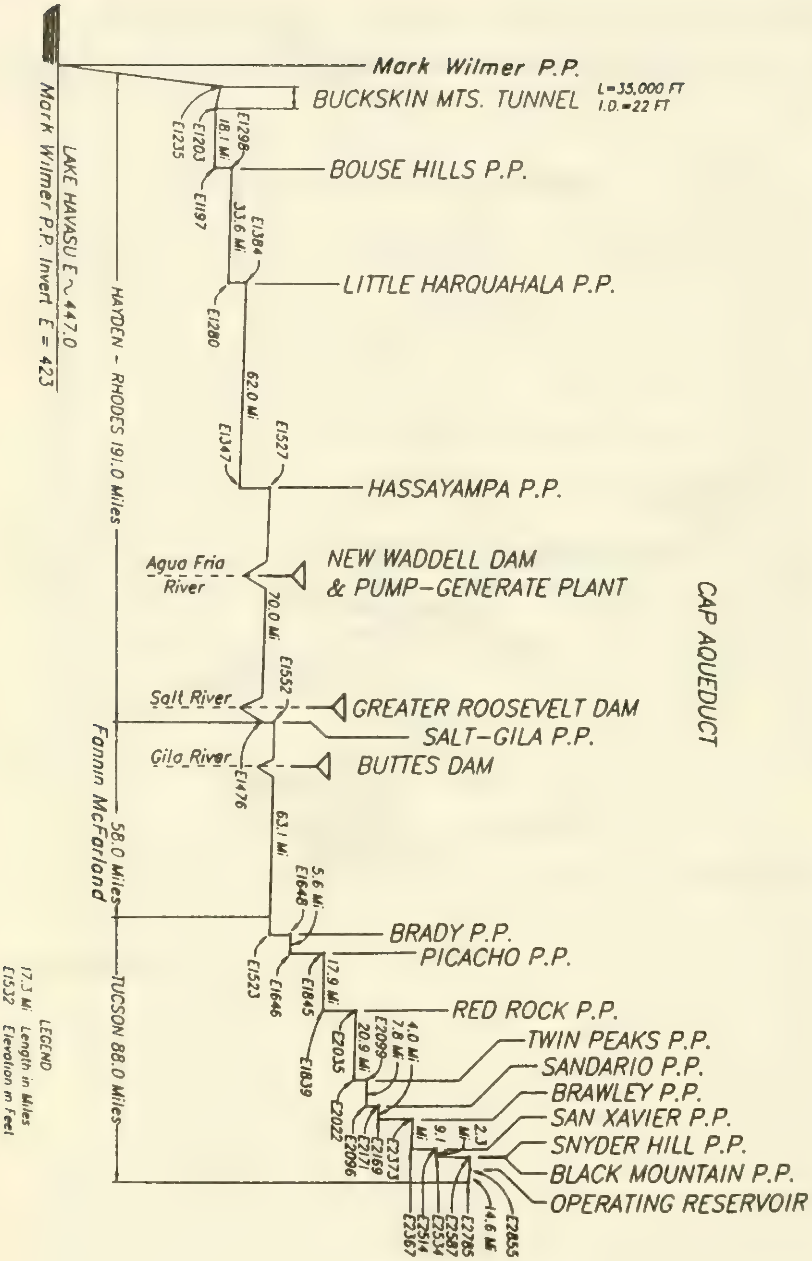
Mark Wilmer P.P.
BUCKSKIN MTS. TUNNEL
L=35,000 FT
I.D.=22 FT
BOUSE HILLS P.P.
LITTLE HARQUAHALA P.P.
HASSAYAMPA P.P.
NEW WADDELL DAM
& PUMP-GENERATE PLANT
GREATER ROOSEVELT DAM
SALT-GILA P.P.
BUTTES DAM
BRADY P.P.
PICACHO P.P.
RED ROCK P.P.
TWIN PEAKS P.P.
SANDARIO P.P.
BRAWLEY P.P.
SAN XAVIER P.P.
SNYDER HILL P.P.
BLACK MOUNTAIN P.P.
OPERATING RESERVOIR
CAP AQUEDUCT
Mark Wilmer P.P. Invert E = 423
LAKE HAVASU E ~ 447.0
HAYDEN - RHODES 191.0 Miles
Fannin McFarland
58.0 Miles
TUCSON 88.0 Miles
Agua Fria River
Salt River
Gila River
E1235
E1203
18.1 Mi
E1298
E1197
33.6 Mi
E1384
E1280
62.0 Mi
E1347
E1527
70.0 Mi
E1552
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E2171
E2169
E2373
9.1 Mi
2.3 Mi
E2367
E2514
E2534
E2587
E2785
4.6 Mi
E2855
LEGEND
17.3 Mi Length in Miles
E1532 Elevation in Feet

Information Fact Sheet

DATE AUTHORIZED: September 30, 1968 -- P.L. 90-537 (Colorado River Basin Project Act)

PROJECT PURPOSE: Municipal/industrial (M&I), and agriculture (AG) water supply, flood control, power, recreation and fish and wildlife. 1.5 million acre feet per year average annual water supply with a maximum yearly delivery of 2.2 million acre feet.

CONSTRUCTION START: 1973

CONSTRUCTION AGENT: U.S. Bureau of Reclamation

CURRENT COST:		EXPENDITURES:	
Federal	$4.331 billion	Federal	$3.216 billion
Local	.333 billion	Local	.301 billion
Total	4.664 billion	Total	3.517 billion

COST DISTRIBUTION: *

51% Water Supply System and Distribution
17% Non-Reimbursable
24% Federal Use
8% Local Contributions

AUTHORIZED COST CEILING: $4.34 billion **% COMPLETE:** 79%

PHYSICAL SYSTEM: 337 miles in length, 14 pumping plants with about a 2400 foot lift

CONTRACTING AGENT: Central Arizona Water Conservation District (15-member Board of Directors, elected by county within the 3-county District for staggered 6-year terms)

REVENUE SOURCES:
(Capital Costs)

1. Water Sales
2. Power Revenues
   (4.5 mil Hoover surcharge plus Navajo surplus)
3. Property Taxes

STATUS OF FEATURES:	% Complete	Water Delivery
Hayden-Rhodes Aqueduct	94%	in service
Fannin-McFarland Aqueduct	100%	in service
Tucson Aqueduct	98%	initial deliveries to Tucson were made in 1991
Tucson Reliability Division	5%	
New Waddell	91%	in service
Roosevelt	90%	complete in calendar year 1996

* Subject to ongoing negotiation.

Feature Fact Sheet

AQUEDUCTS

	HAYDEN-RHODES	FANNIN-McFARLAND	TUCSON
LOCATION:	Lake Havasu to Salt River	Salt River to E. of Picacho Reservoir	Picacho Res. to boundary of San Xavier Indian Reservation

LENGTH:	190 mi. of conc. lined canal	58 mi. of conc. lined canal	87 mi. of conc. lined canal and pipe
COST:	$879 million (estimate)	$202 million (estimate)	$620 million (estimate)
CAPACITY:	3,000 cfs	2,750 cfs (beginning); 2,250 (end)	2,250 cfs (beginning); 200 cfs (end)
PUMPING PLANTS:	4 (1,250 feet lift)	1 (86 feet lift)	9 (1,806 feet lift)

PLAN 6 (Regulatory Storage Division)

	NEW WADDELL	MODIFIED ROOSEVELT	STEWART MOUNTAIN
LOCATION:	Aqua Fria River	Salt River	Salt River
TYPE:	440 ft. zoned earthfill	357 ft. high conc. arch or conc. gravity	207 ft. high conc. arch
RESERVOIR CAP:	1,108,600 a/f	3,411,500 a/f	69,675 a/f
COST:	$625 million (estimate)	$347 million (estimate)	$48 million (estimate)
SCHEDULED COMP:	Complete	1996	Complete

1995 CENTRAL ARIZONA PROJECT OVERVIEW

1995 was a year full of opportunities and challenges for the Central Arizona Project (CAP) and the CAP's operating entity, the Central Arizona Water Conservation District (CAWCD).

It is important to note that the CAP is in sound financial condition. At the end of 1995, CAWCD had sufficient unencumbered reserves to cover about three years of capital repayment costs. For 1996, operating expenses are expected to be about $74 million and the costs of major repairs of construction deficiencies to be slightly more than $23 million, which combined with the capital repayment to the U.S., will result in a total expenditure of about $150 million. The projected revenues include $45 million from water sales and related operation and maintenance activities, $19 million in tax revenues, $25 million in power revenues, $20 million in capital charges, and $10 million from investment income for a total of approximately $119 million. The $31 million difference between projected expenses and projected revenues will be funded from CAWCD's reserves as part of the District's long-term plan. This includes a CAWCD investment of approximately $4 million in recharge.

For the second consecutive year, CAP water deliveries set a record with a 15 percent increase in the amount of water delivered to central and southern Arizona. In 1995, CAP provided 952,539 acre-feet of Colorado River water to cities, industries, farms, and Indian communities in Maricopa, Pinal and Pima counties.

Deliveries included 531,729 acre-feet to non-Indian farmers, 334,093 acre-feet to municipal and industrial (M&I) customers, and 76,345 acre-feet to the Ak-Chin Indian Reservation in Pinal County. In addition, 59,958 acre-feet were delivered for groundwater recharge to the Granite Reef Underground Storage Project (GRUSP), northeast of Mesa.

The board of directors of CAWCD took the first steps towards assuming responsibility for current and future construction activities for the CAP in addition to its existing accountabilities of operation, maintenance and repayment of the CAP system. In 1995, the board authorized nearly $30 million to replace the Agua Fria River siphon and repair the Centennial Wash siphon. In an unprecedented move, this action became the first major construction project undertaken by CAWCD. The federal government initially constructed the CAP, however, at this time the U.S. Bureau of Reclamation (USBR) is unwilling to correct defects and deficiencies in the CAP water supply system. CAWCD finds it must do so and will use its own funds to complete repair work on the siphons. CAWCD intends to recover the cost of this work from the federal government.

CAWCD is a major user of CAP water through the use of its own financial reserves to invest in the delivery of water for underground storage. The District supports State water objectives by increasing the use of Arizona's Colorado River entitlement through underground storage to provide future water supplies. CAWCD's groundwater recharge activities consist of direct recharge as part of state demonstration projects and groundwater savings projects (in-lieu) to replace groundwater that would have otherwise been pumped.

To ensure that adequate supplies of CAP water are available for future use, CAWCD has authorized a comprehensive water recharge project which includes $12.5 million in demonstration project funds for projects in Pima and Maricopa counties. CAWCD has plans and programs to recharge more than 250,000 acre-feet of recharge in 1996. This includes 147,000 acre-feet of incentive-priced recharge water for use by municipal and industrial and Indian contractors of CAP water service. These plans also allow an increase in recharge for continuation of the interstate demonstration program and recharge by the State if such a program is authorized.

CAWCD has worked closely with the Arizona Department of Water Resources (ADWR) to identify the need for and a plan to increase Arizona's utilization of its Colorado River water supply. Arizona's unused entitlement is currently used by California. Continued long-term use of Arizona's unused entitlement is sought by both California and Nevada. CAWCD strongly supports the concepts regarding increased use of our entitlement within Arizona. Underground storage of excess supplies can greatly improve Arizona's water future, extend the life of Arizona's assured water supply and provide backup supplies during prolonged periods of drought and unanticipated CAP outages. The ADWR concepts include an interstate water banking arrangement which would enable California and Nevada to store excess Colorado River water off stream in Arizona as well as the development of an Arizona State Water Bank.

On April 22, 1993, Governor Fife Symington signed into state law the Groundwater Replenishment District Act. It created a groundwater replenishment authority called the Central Arizona Groundwater Replenishment District (CAGRD). State legislation structured it to be operated by the CAWCD Board of Directors throughout its three-county service area.

The CAGRD is responsible for using renewable water supplies to replenish aquifers for excess groundwater pumped by its members. Excess groundwater is mined groundwater that exceeds the pumping limitations imposed by the State's Assured Water Supply rules. This replenishment occurs through the operation of aquifer replenishment projects, state demonstration projects and indirect groundwater storage and recovery projects. Water used for replenishment may be CAP water or water from any other lawfully available source except groundwater withdrawn from an Active Management Area of the state. Funding from replenishment activities comes from funds advanced by CAWCD for non-replenishment reserves and annual replenishment assessments and taxes on members.

CAWCD has initiated overtures to improve relationships with CAP Indian tribes. The board and staff are committed to providing quality service to all CAP water users. CAWCD has embarked upon a series of meetings with CAP Indian communities to identify and attempt to resolve their concerns relative to CAP. It is a serious undertaking, and initial meetings indicate reasons to be optimistic about the progress that can be made. In addition, CAWCD supports adequate federal funding for the construction of CAP distribution systems for Indian contractors of CAP water service.

Environmental issues are of great importance to CAWCD. Incorporated into the planning, design, construction and ongoing operation of CAP are significant amounts of money for fish and wildlife mitigation, endangered species preservation and archeological protection. More than 40 separate endangered species consultations have been successfully implemented on CAP. As of 1988, about $40 million had been committed to environmental mitigation features associated with the CAP. Examples include wildlife crossings over the aqueduct, fencing to prevent wildlife losses, water catchments for wildlife drinking water, endangered plant preservation, wildlife corridors and replacement acreage for endangered species' habitat loss. Considerable additional funds will be spent as well with more than $100 million to control emissions from the Navajo Generating Station.

CAWCD supports environmental values, but is equally committed to challenging regulatory requirements that are not supported by facts and sound science. An example is the Section 7 jeopardy opinion by the U.S. Fish and Wildlife Service (USFWS) which alleges the potential introduction of non-native species from the Colorado River into the Gila River system jeopardizes the existence of several native fish species. This opinion ignores basic facts such as the existence of high dams and extensive reaches of dry river bed that would stop migration of fish upstream, and past and existing fish stocking programs that have introduced exotic species into the Gila system. If implemented, the opinion and mitigation requirements will add unwarranted costs to CAP, its water users and taxpayers. CAWCD is currently engaged in negotiations with USFWS and the Bureau of Reclamation to resolve the issue. However, if negotiations are unsuccessful, the District will litigate.

Two other issues of particular difficulty in 1995 were the federal repayment of the CAP and a Tucson voter initiative which passed in November 1995.

Since repayment was initiated in 1993, CAWCD and the federal government have disagreed over the amount of money the District must repay the federal government for the CAP's construction costs. The disagreement related to different interpretations of the Master Repayment Agreement between CAWCD and the U.S. Bureau of Reclamation (USBR) and the Bureau's handling of CAP water demands made by central Arizona Indian tribes. After lengthy negotiation, CAWCD reluctantly filed a lawsuit in U.S. District Court asking for a judicial finding regarding the repayment cost.

Another challenge occurred in Tucson with the passage of the so-called "Consumer Water Protection Act". The City of Tucson was expected to be the CAP's single largest municipal user of CAP water, but problems within the City's internal system with treatment and an antiquated city delivery system led to the suspension of CAP direct use. The water quality complaints prompted a local initiative, which sought to ban delivery of CAP water for drinking for five years. CAWCD has proposed a plan to accommodate the changes generated by the initiative and is collaboratively working with Tucson leaders in dealing with the issue.

While the Project is close to completion, cleaning up the finishing details is vital to its success. Certain features such as the Navajo Generating Station scrubbers and Indian distribution systems remain to be finished and certain construction deficiencies must still be corrected.

PLAN 6 OVERVIEW

Background

Arizona is a water short state, but in contrast to water scarcity, heavy rains periodically cause severe flooding along the Salt and Gila Rivers, particularly in the Phoenix metropolitan area. Finding a solution to this water paradox has been a coordinated effort by federal, state and local agencies in Arizona.

The concept of a major dam at the confluence of the Salt and Verde Rivers has been around for a long time. The studies of the Bureau of Reclamation that were presented to the Congress in the late 1940's and early 50's in support of authorization of the Central Arizona Project included such a structure under the name of McDowell Dam. The Corps of Engineers in the mid-1950's investigated the potential of a flood control dam at the confluence but was unable to demonstrate that benefits exceeded cost for a project limited to flood control.

In 1968, the U.S. Congress authorized the construction of Orme Dam (formerly McDowell Dam) or suitable alternative as part of the CAP. A draft Environmental Impact Statement (EIS) was prepared for Orme Dam in 1976. Agency and public response to this statement indicated substantial environmental, economic and social concerns regarding the inundation of major portions of the Fort McDowell Indian Reservation, riparian habitats, and impacts on the habitat of the endangered bald eagle and other species. These and other concerns caused the Bureau of Reclamation to reassess the facility.

In July 1978, following major flooding in the Phoenix area, Reclamation initiated the Central Arizona Water Control Study (CAWCS) to develop plans for the solution to the flood control problems along the Salt and Gila Rivers and to provide water conservation and regulatory storage for the CAP. Because of the flood control aspects of the study, the U.S. Army Corps of Engineers assisted Reclamation and was responsible for the flood control planning and economic analysis.

During the CAWCS, a wide array of elements or alternatives were identified. Of this large array, nine plans were analyzed in detail.

On November 11, 1981, after being briefed on the results of the CAWCS analysis, Secretary of Interior James Watt made the following announcement:

"Plan 6 should be considered as the proposed action for the CAWCS". He stated that the logic for the selection of Plan 6 as the proposed action includes strong local support, the functional ability to meet the statutory obligations required by the authorizing legislation, and the avoidance of impacts to the Fort McDowell Indian Reservation.

Secretary Watt stated that strong local support was one reason for selecting Plan 6. This local support was achieved through an intensive public involvement program. The public involvement program had several goals in addition to meeting the legal and administrative requirements. One goal was to inform the public, another to involve the public, a third to build credibility for the study and, finally, to develop a consensus around the plan.

The draft EIS on Plan 6 (now the Regulatory Storage Division of the CAP) was filed with the Environmental Protection Agency in April 1983. In this statement, along with Plan 6, four other alternative solutions and the "No Action" plan are displayed.

In February 1984, the final EIS was filed with EPA. It again identified Plan 6 as the agency proposed action.

Amended Plan 6

In September 1985, an environmental coalition filed suit in the U.S. District Court challenging the Secretary of the Interior's decision to file the final EIS for the Regulatory Storage Division. They requested that Reclamation be precluded from proceeding with any feature of Plan 6.

In June 1987, in an effort to avoid a prolonged lawsuit, which could impact funding for the entire CAP, the Arizona Congressional delegation negotiated a statement of principles with the environmental coalition. The delegation agreed not to pursue funding for construction of Cliff Dam on the Verde River, then part of Plan 6. In return, the coalition agreed to drop its suit and not oppose funding for the CAP and the remaining features of Plan 6.

The amended Plan 6 includes the construction or modification and operation of five dams and associated reservoirs. The plan calls for the construction of New Waddell Dam and the modification of Theodore Roosevelt, Stewart Mountain, Horseshoe and Bartlett Dams.

The operation of New Waddell and modified Roosevelt provide regulatory storage for the CAP, additional water supply, flood control, recreation, and fish and wildlife benefits. In addition, modifying Roosevelt, along with modifying Stewart Mountain, Horseshoe and Bartlett correct existing dam safety problems. Reclamation, in conjunction with the U.S. Army Corps of Engineers, was unable to find economically justifiable flood control measures on the Verde River to include with water conservation modifications to Horseshoe and Bartlett Dams.

Benefits

Regulatory Storage: Operationally, the primary and overlying purpose of CAP regulatory storage is that of balancing, or buffering, the Project's water supply with water user demands.

Given a 337-mile long aqueduct system and several dozen discretely different water user entities, the need for storage to effectively manage this system is very apparent. The regulatory storage function in Plan 6 is accomplished by the New Waddell reservoir.

Operational flexibility is also important and simply means responsiveness to change. Changes can occur abruptly or gradually over a period of years.

With New Waddell, CAP operations will be reliable and responsive to change, able to provide water to a large number of water users, when and where the water is needed.

A major advantage of flexible operation of the CAP system is more efficient energy management. The benefit resulting from this energy management includes the ability to sell surplus power not needed for CAP pumping to meet peak loads of other power producers, such as utility companies.

Water Supply Storage at modified Roosevelt will increase usable supplies by storing the water which historically spilled from the Salt River Project dams. New Waddell contributes to increased water supplies by allowing better use of the resource available to Arizona from the Colorado River. Having no storage would restrict CAP capability to use Colorado River water to a maximum of about 1.6 million acre-feet a year. With New Waddell, CAP can divert up to 2.2 million acre-feet when Colorado River supplies are surplus.

Flood Control Flooding along the Salt and Gila rivers has been recorded since the 1860's. Dams on the Salt and Verde Rivers were not designed to provide flood control, although they incidentally reduce peak flows when storage space is available. Since the primary purpose of the Salt and Verde River dams is water conservation and not flood control, the reservoirs are often filled to capacity. The storage space in the SRP system is not evenly divided between the Salt and Verde Rivers. Approximately 85% of the 2,063,900 acre-feet of storage in the system is provided on the Salt River. As might be expected from this, a disproportionate share of the water from recent floods has emanated from the Verde River.

Social ramifications of flooding are a major issue. Dislocation of residents and flood damage to public facilities cause severe interruptions in essential services. These ramifications extend beyond the flooding itself to the time required to repair and recover from the damage.

Control of both the Verde and Salt Rivers, each draining over 6,500 square miles of mountainous watershed, is required to provide an acceptable level of flood control through metropolitan Phoenix.

Safety of Dams For the solution of the safety of dams problems on the Salt and Verde Rivers, amended Plan 6 provides that Reclamation will modify Roosevelt, Stewart Mountain, Horseshoe and Bartlett Dams. Additional foundation treatment is also under consideration at Horse Mesa, Mormon Flat and Bartlett Dams.

SAFETY OF DAMS OVERVIEW

Introduction

The "Reclamation Safety of Dams Act of 1978" (P.L. 95-578), signed by the President on November 2, 1978, authorizes the Secretary of the Interior, with the concurrence of Congress, to perform necessary modifications at existing Federal Reclamation dams for Safety of Dams purposes. This Act was amended in 1984. The amended Act includes additional funds for repairs and requires that 15% of the cost be reimbursed by a local entity.

Responsibility of the Federal Government

The SRP dams are owned by the United States and are currently operated by Salt River Valley Waters Users Association and the Salt River Project Agricultural Improvement and Power District under two contracts with the United States. Reclamation is responsible for the safety of the dams and for initiating actions necessary to ensure their safe operation.

Flood Hazards

Floods large enough to cause overtopping of the most upstream SRP dams on both the Salt and Verde Rivers could occur in any year. Such overtopping would lead to the failure of at least one dam above the Phoenix area with catastrophic consequences to people and property. Major floods experienced in the late 1970's and early 1980's caused continuous flow over the spillways and demonstrated the reality of the flood danger. Both Stewart Mountain and Bartlett Dams had spillway capacities less than their respective upstream dams.

The determination of whether the SRP dams would fail or not requires many engineering judgments and involves many unknowns. Therefore, Reclamation evaluated, through its inundation mapping studies, the worst-case peak discharge that would result if all four dams on the Salt River were to breach from overtopping. The results indicate that the worst-case peak discharge immediately downstream of Stewart Mountain would be approximately 5 million cubic feet per second. Catastrophic loss of human lives and damage to property would result through the Phoenix metropolitan area.

Should a major flood event occur on the Verde River above Horseshoe Dam, the dam, an embankment structure, would breach releasing the entire reservoir. The peak discharge past the Horseshoe dam site would be approximately 1,800,000 cubic feet per second.

The outflows from a Horseshoe Dam failure, combined with intervening flow, would result in a Bartlett Dam breach due to erosion of the foundation supporting the arch barrels and buttresses. The spillway gates, superstructure and chute would also fail. The entire reservoir would be released resulting in an estimated peak discharge immediately downstream from the dam of 4,400,000 cubic feet per second (results from Reclamation's inundation mapping studies). This peak would reach Tempe in less than 4 hours. Assuming that Bartlett Dam would not fail still would result in a peak discharge of approximately 775,000 cubic feet per second immediately downstream of the dam. Catastrophic loss of human lives and damage to property would occur downstream in either case.

Seismic Hazards

In addition to the threat of failure during major floods, the SRP dams would also have failed from major earthquakes. All of the SRP dams required either structural or foundation modifications to be capable of accommodating a major seismic event without catastrophic release of reservoir storage.

Many earthquake failure scenarios are possible for the SRP dams. The most plausible scenario may also be the most hazardous to lives because of the very short time available for evacuation. In contrast to other failure scenarios where local authorities would probably be alerted about emergency conditions at any of the SRP dams long before possible failure might occur, no accurate predictions of a major earthquake can be expected.

Presently Endangered People and Property

Located within the floodplain of the Salt River downstream of the SRP dams are the cities of Mesa, Tempe, Scottsdale and Phoenix, as well as many smaller municipalities.

More than 250,000 people live within the area that could potentially be inundated by failure of the SRP dams in the worst-case scenario. Highly populated areas are within 25 miles downstream of Stewart Mountain Dam. The threat to lives, however, may not be greatest in the worst-case scenario. Even though total volume and peak flows would be considerably less than the worst case scenario, a Stewart Mountain Dam failure from a major seismic event, if it occurred during the summer, could endanger many thousands of recreationists using the lakes and rivers as well as residents in the potential inundation area downstream. It is very unlikely that all of these people would have adequate warning time to safely evacuate.

Under the worst-case failure scenario, recreational activity would be limited by the adverse weather conditions associated with the probable maximum rainstorm. Another factor that may reduce the potential for loss of life is the many hours of advanced warning that should be available before any of the dams even begin to be overtopped and long before failures may occur. Because Phoenix has implemented an advance flood warning system and has emergency preparedness and evacuation plans, it can be expected that the public would be well informed of the potential dangers and that evacuations would begin many hours before any dams may fail. However, considering that as many as 250,000 people may have to be evacuated, that some people tend to ignore warnings or in other ways accept risks that result in loss of life, the potential for loss of life would still exist.

Land within the area inundated under the worst-case dam failure scenario, categorized by usage, is summarized below:

Land Use	Area (acres)
Residential	14,700
Commercial	2,600
Public	2,800
Industrial	6,100

Agricultural	107,000
Total	133,200

Property that would be directly affected by the flood flows include Sky Harbor International Airport, Litchfield-Phoenix Municipal Airport, Interstate Highways 10 and 17, other highways and roads, railroads, all Salt River bridges, eleven major hospitals, shopping malls, many industrial and commercial centers, the Arizona State Capitol, homes, churches, 73 schools, five colleges and one university, water and sewage treatment facilities, museums and zoo, farmsteads, canals, irrigation pumps and laterals, communications switching stations, SRP transmission facilities, the Ocotillo Generating Station, and numerous other improvements.

Safety of Dams Action

The authorized action, implementing the Safety of Dams (SOD) portions of amended Plan 6 (modifying Theodore Roosevelt, Horseshoe, Bartlett and Stewart Mountain Dams) and performing SOD modifications to Horse Mesa, Horseshoe, Mormon Flat and Bartlett Dams, will ensure the safety of the SRP dams.

By limiting spillway releases from Theodore Roosevelt Dam to a peak discharge that will not exceed the spillway capacity of the downstream dams on the Salt River, the modifications to the downstream dams can be limited to foundation strengthening necessary to make the dams stable under earthquake loading. Stewart Mountain Dam, however, would still require additional spillway capacity to accommodate a major summer thunderstorm and would require major structural and foundation modifications to accommodate the maximum earthquake.

Amended Plan 6 also includes the construction of New Waddell Dam on the Aqua Fria River west of Phoenix. This feature does not improve safety of the SRP dams and does not require any SOD funding. It did, however, eliminate the need to modify the then-existing Waddell Dam which had safety problems.

By implementing the multi-purpose proposed action, the safety of the SRP dams will be ensured and will require less SOD funds than if single-purpose SOD corrective action were undertaken.

Other benefits will also be derived, such as flood control and increased conservation storage.

REPAYMENT OVERVIEW

Financing the C.A.P.

Most of the CAP construction cost is financed by the federal government under the terms of the CAP repayment contract. This contract, signed in 1972 and amended on December 1, 1988, sets forth the share of CAP costs that must be repaid by Arizonans. Some costs, called non-reimbursable costs, do not need to be repaid. These include most flood control and fish and wildlife enhancement. Recreation costs are partially non-reimbursable. Reimbursable costs are those for commercial power, irrigation, and municipal and industrial (M&I) water supply. Irrigation costs are interest free but M&I and power costs must be repaid with interest.

The current construction cost of the CAP is $4.34 billion. This cost is attributable to the project beneficiaries in the following percentages: 13% to Indian and non-Indian distribution; 8% to non-reimbursable; 30% to federal use; and 49% to local interest.

One issue that has emerged since the repayment contract was negotiated is the division of Plan 6 cost between CAP and the SOD program which has been generally accepted by all the interested parties. While no contracts have been signed to formalize the Reclamation proposal, Reclamation's proposed method has served as a background to the Plan 6 Advanced Funding Agreement negotiations.

Although Congress agreed to finance the CAP in 1968 when it passed the Colorado River Basin Project Act, it provides funds by annual appropriation for CAP construction. The following shows the appropriation for the last fourteen years and the President's FY1996 request.

Year	Requested	Appropriation
1982	$186 million	$186 million
1983	161 million	161 million
1984	166 million	166 million
1985	188 million	196 million
1986	174 million	194 million
1987	204 million	204 million
1988	269 million	240 million
1989	218 million	212 million
1990	218 million	209 million
1991	198 million	198 million
1992	136 million	136 million
1993	175 million	174 million
1994	179 million	179 million
1995	146 million	167 million
1996	122 million	125 million
1997	Not yet submitted	

The Central Arizona Water Conservation District (CAWCD) was created to repay Arizona's share of the reimbursable costs of the CAP. CAWCD derives revenue from sales of irrigation and M&I water, sales of CAP power in excess of CAP water pumping needs (Navajo Surplus), surcharges on power sales in Arizona from Hoover Dam, and property taxes in the three CAP counties. CAP water rates include a component for the operating costs of the CAP as well as a repayment component. Additionally, CAWCD uses the money collected to repay the federal government. The repayment began in January 1994 after the Secretary of the Interior declared the Project substantially complete.

The CAP contract provides a schedule for repayment for the 50 year repayment period. The annual percentages of the repayment obligation are set out in the following table.

Project or Separate Feature Year	Percentage of Repayment Obligation Annual
1-7	1.0
8-14	1.3
15-21	1.6
22-28	2.0
29-35	2.6
36-42	2.7
43-49	2.7
50	2.7*
	100.0

*Approximate

Up-Front Funding Agreement

In 1985, Arizona's water interests again focused their attention on Plan 6. In recent years, it became apparent that Congressional funding would not be sufficient to complete the CAP in a timely fashion. Recognizing this problem, the Governor, in cooperation with Arizona's Congressional delegation, formed a committee to develop a plan for Arizona to contribute funds up-front to expedite completion of Plan 6 features. After months of negotiations, an historic cost-sharing agreement was signed by local interests and the Secretary of the Interior, Donald Hodel, on April 15, 1986. Under this agreement, Arizona entities would advance approximately $371 million towards completion of Plan 6 and in return, the federal government will meet specific completion dates for CAP features.

After the Statement of Principles were negotiated between the Congressional delegation and the environmental coalition and Cliff

Dam was eliminated from Plan 6, the original funding agreement had to be modified. In July 1987, the parties to the funding agreement began meeting in an attempt to resolve any problems with the original funding agreement. In October 1987, a supplement to the original funding agreement was signed by all parties. The supplement modified provisions of the funding agreement which dealt with Cliff Dam.

The funding agreement and its supplement will ensure that Plan 6 will be completed by 1997. Arizona's up-front funding offer is unique. This is the first time local interests have stepped forward to assist the federal government in completing a major reclamation project.

The funding agreement and its supplement were entered into by the Secretary of the Interior, the State of Arizona, Salt River Project, Flood Control District of Maricopa County, Central Arizona Water Conservation District, the six valley cities and the City of Tucson.

The basic funding provisions of the funding agreement and its supplement are as follows:

1. CAWCD shall advance $175 million for construction of New Waddell reservoir.

2. The six valley cities shall advance the cost associated with new conservation storage at Roosevelt reservoir.

3. The Flood Control District will advance 20 percent of the Plan 6 flood control cost.

4. The Salt River Project will advance 15 percent of the cost allocated to safety of dams of Plan 6 features.

5. The State shall establish a Verde River protection fund and provide $2 million for that fund.

6. The Secretary of the Interior is obligated to budget amounts sufficient to meet a construction schedule established in the agreement.

7. The Secretary of the Interior will pursue alternative water sources to be substituted for the water supply lost with the elimination of Cliff Dam.

8. These costs must be reviewed due to difficulty in finding substitute water supplies.

The funding agreement and its supplement have had a major impact on the amount of federal funds made available to the entire Central Arizona Project, not just to Plan 6. As required by the terms of the agreement and its supplement, the local entities involved have made their contributions to the construction of Plan 6. Local interests have collectively placed approximately $242.4 million in an escrow account of which approximately $233.1 million has been withdrawn by Reclamation for construction.

THE NAVAJO POWER MARKETING PLAN

On December 1, 1987, the Commissioner of Reclamation approved for the Secretary of the Interior the Navajo Power Marketing Plan. This plan is an important element of the Plan 6 cost-sharing agreement.

A feature of the Central Arizona Project is an ownership of 24.3% of the Navajo Power Generating Station at Page, Arizona. This share of the power plant was purchased to provide power to pumping plants on the CAP aqueduct. Under the normal operating schedule of the aqueduct, there will be periods of time when the Project's share of power generated at Navajo is surplus to the needs of the pumping plants. With New Waddell Dam operational, the total system can be operated to make surplus power available for sale when it is most valuable to other users. The Hoover Power Plant Act of 1984 authorized the sale of surplus power to repay funds advanced by CAWCD for the purpose of up-front funding CAP construction costs. The Act provides that the sale of this power is to be accomplished pursuant to a Navajo Marketing Plan, adopted by the Secretary of the Interior after consultation with the Governor of Arizona, CAWCD and the Secretary of Energy.

CAWCD needed an acceptable power marketing plan to support its share of contributions to Plan 6 pursuant to the cost-sharing agreement. Therefore, the cost-sharing agreement required that the Navajo Power Marketing Plan be completed by December 31, 1987.

The Plan provides for the sale of summer peaking capacity and energy and other energy that may be available from time to time. The Plan assures over $28 million per year will be available to CAWCD.

SUMMARY

The Central Arizona Project is a vital and necessary part of Arizona's future, growth and economic stability. The Central Arizona Project Association has been working to support its authorization, funding, construction and successful operation since 1946. We hope this Briefing Book provides a useful summary of the current status of the Project. Additional information on the Project can be obtained by contacting us or the Central Arizona Water Conservation District.

PREPARED STATEMENT OF THE ARIZONA DEPARTMENT OF WATER RESOURCES

H.B. 2494: THE ARIZONA WATER BANKING AUTHORITY

A Proposal to Bank Additional Colorado River Water in Arizona

For over 70 years, Arizona leaders have worked to ensure that Arizona's communities have dependable long-term water supplies. From securing the state's fair share of Colorado River water and gaining the Congressional authorization of the Central Arizona Project (CAP), to the crafting of the 1980 Groundwater Management Code, their foresight and planning has provided the water supply that serves our growing communities and maintains our quality of life. Now, the state legislature has the opportunity to continue the tradition.

Currently Arizona does not use its full 2.8 million acre foot (maf) share of Colorado River water. Arizona Department of Water Resources' projections indicate the state will fully use the resource by 2030. Between now and then the accumulated amount of water left in the River could be as high as 14 million acre feet.

Leaving a portion of Arizona's water in the River, most of which is consumed by southern California, is a lost opportunity. The proposal before the state legislature to establish an Arizona Water Banking Authority (AWBA) seizes this opportunity and gives us the capability to implement innovative water policy that will help to secure dependable water supplies to serve Arizona's long-term prosperity.

Arizona Water Bank Authority

The AWBA, proposed to operate from 1996 through 2016, would purchase annually a portion of our unused Colorado River supply, bring it into central Arizona via the CAP, and store it in existing aquifers. **Key benefits of the AWBA include:**

Drought Protection. The AWBA would help protect communities dependent on the CAP by providing a stored reserve of water that can be tapped during times of drought on the Colorado River.

Enhanced Water Management. The AWBA would be a new tool in this effort by providing the ability to replenish depleted groundwater aquifers with CAP water, thereby helping the state to meet its groundwater management goals and objectives.

Indian Water Rights Settlements. Indian tribes in Arizona have significant claims to water rights. Often the affected parties negotiate settlements to resolve these claims. The AWBA could provide another pool of water to be used in settlements. For instance, credits for stored groundwater could be transferred to a tribe as a component of a settlement.

Statewide benefit. Arizona communities along the Colorado River would benefit as well. For example, cities in Mohave County could acquire credits through the AWBA for water stored in central Arizona and cash-in those credits by diverting water directly from the Colorado River.

Interstate Water Transfers. The AWBA could contract with similar authorities in California and Nevada to allow these states to annually acquire a portion of Arizona's temporary surplus of Colorado River water. The contracting state would pay to store water in Arizona, helping to replenish the state's aquifers, and in the future would be able to draw a similar quantity directly from the River. The program does not involve the sale of any future rights to water, only a specific quantity of unused water.

AWBA Commission

A five person Commission will direct the activities of the AWBA. The Director of the Department of Water Resources will chair the Commission and members will include the President of the Central Arizona Water Conservation District, an appointment by the Governor, an appointment by the President of the Senate and an appointment by the Speaker of the House. Additionally, the Senate and House of Representatives will each appoint one non-voting ex officio member to the Commission.

Funding

Funds would be deposited in the Water Bank Fund. Much of the money would come from existing revenue sources and from fees that would be charged to those benefiting directly from the stored water. Sources of money would include:

- Fees for groundwater pumping currently collected within the Phoenix, Pinal and Tucson Active Management Areas. Money from this source would be used to benefit the area in which it was collected.

- The CAWCD is authorized to levy a four cent ad valorem property tax in the CAP service area to pay for water storage beginning in 1997. To help finance the AWBA's efforts, the tax would be initiated in 1996 extended through 2016 and revenues would be deposited in the Fund. The CAWCD retains the option to use this money for capital repayment of the CAP if necessary.

- A general fund appropriation based on the level of water storage the legislature and governor believe to be appropriate.

- Fees collected from the sale of stored water credits used for drought protection. Fees are charged only if the credits were originally paid for with general fund money.

- Money collected by the sale of stored water credits to out-of-state interests.

AWBA Study Commission

The Study Commission will consist of the AWBA Commission members and two ex officio members as well as nine persons appointed by the director of Department of Water Resources. The Study Commission will investigate opportunities for additional water banking uses, identify mechanisms to help Indian communities with rights to Colorado River water participate in the program, and review the first year operation of the AWBA.

Conclusion

The AWBA legislation is the type of flexible statewide policy that can guide Arizona water planning into the next century. By storing substantial amounts of water in central Arizona, the AWBA will help safeguard against future shortages on the CAP system, assist in meeting the goals of the Groundwater Code, and aid neighboring states without harming Arizona. However, the window of opportunity is limited: soon, we will fully use our annual Colorado River supply. By acting now, we begin Arizona's "water savings account," helping to ensure that the water supplies future generations inherit from us are just as secure as those we inherited.

ARIZONA'S PERSPECTIVE REGARDING COLORADO RIVER ISSUES

I. *Introduction*

Arizona recognizes that important issues have been raised by the states of California and Nevada concerning their needs for additional water resources from the Colorado River system. Arizona had been involved in discussions for the past two years searching for mutually agreeable solutions within the Lower Basin. Its review of some of the options which have been discussed has led it to conclude that many of the items hold promise for implementation, however, there are others that it feels simply create too much risk and therefore are not in its best interest.

- appreciate opportunities to share our goals and concerns
- remain convinced that the only viable solution will be the one developed by consensus

II. *Background*

A. Arizona believes that the *Arizona v California* decree provides certainty to the protection of its 2.8 maf entitlement even though it has not yet put that entitlement to full use.

B. The 1968 Colorado River Basin Project Act, which authorized the CAP, established a priority system for distributing water in times of shortage in the

Lower Basin. As a result of this act, the CAP would be required to bear the brunt of most shortage-condition reductions. While Arizona has accepted and continues to accept this low priority status, it need not and should not be required to accept increased risks of shortage. Nor can Arizona accept other parties determining what constitutes increased risks.

C. Arizona's analysis of proposals is based on the following:

1. Does the proposal increase the risk of a shortage of water for the Central Arizona Project?
2. Does the proposal alter the Law of the River or set legal precedents in a way that threatens its entitlement to 2.8 maf per year?

III. *Colorado River reservoir management*

A. Principles governing surpluses

1. Arizona will support a more liberal surplus declaration policy to help meet the needs of California and Nevada.

2. Surplus declaration policy would be for a limited term, subject to periodic review and renewal based on:

   - current hydrologic conditions;
   - water demands

3. Arizona believes that it may be able to support surplus declaration criteria which are limited. Limitation on the surplus declaration criteria would assume that:

   (a) California should continue to invest in conservation measures to reduce the amount of surplus needed;

   (b) additional water to meet MWD's needs to be made available;

   (c) full surpluses for California agricultural contractors not be made unless the surplus is made to avoid a spill situation.

B. Principles governing shortages

1. Reservoirs should be operated to attempt to limit shortfalls to Arizona in times of shortage to no more than 500,000 af.

2. Nevada should share in shortages to the extent required by the Colorado River Basin Project Act.

3. To avoid shortage declarations, Lake Mead storage should be utilized to a greater extent than had been discussed in previous planning studies. This means that Lake Mead may be drawn down below the power head elevation.

IV. *State-to-state water transfers*

A. Arizona believes that the Supreme Court decree in *Arizona v California* creates a formidable obstacle to interstate transfers of Lower Division Colorado River water.

B. Legal mechanisms

1. Article II(B)(6) of the *Arizona* decree allows water which is unused within a state's apportionment to be used by another state. Arizona believes this legal mechanism may be used to facilitate state-to-state water transfers.

2. Arizona cannot accept the transfer mechanism suggested in the Interior Department proposed rules which classifies non-use of water as use within the state where the water was conserved. The motion of creating a new class of water, that is, conserved water, which is no longer system water for the purpose of allocating Colorado River water raises a number of issues, among them:

   (1) How can the act of conservation, that is, non-use is use, be read to be consistent with the definition of "consumptive use" under the law of the river?

C. Parties to interstate transfers

1. Any interstate transfers under Article II(B(6) must be done on a stat-to-state basis.

2. Arizona must also assert that any interstate marketing of Indian water rights must necessarily be done with the cooperation of the state. However, Arizona is committed to ensuring that any benefits that accrue to the state through interstate marketing will benefit all Colorado River water users in the state including Indian water right holders.

D. What constitutes forbearance?

1. Arizona suggests that a set of criteria be developed for determining forbearance standards. A basin-wide verification committee or organization should determine the degree of savings associated with both Indian forbearance and non-Indian forbearance.

2. Arizona believes that water savings resulting from extraordinary conservation measures may result in freeing up water for transfer or water banking, but believes that the benefits for such measures should be limited to a reasonable economic return on a party's investment.

E. Extent of transfers

Arizona will not support any proposal which directly or indirectly results in a permanent alienation of its entitlement to 2.8 maf per year. Therefore, water transfer agreements for its water must be for limited quantities of water and for a limited duration.

V. *Banking of Colorado River water*

A. Arizona is a strong advocate of banking Colorado River water for future use, so long as that banking is done off the mainstream Colorado River.

B. Arizona is opposed to various on river banking proposals including top-water banking, middle-water banking, and tributary wheeling. It believes these proposals are contrary to the terms of the *Arizona* decree and therefore it cannot accept the legal precedent that there are waters in the mainstream of the Colorado River that are not subject to the decree's apportionment system.

(1) Can the conservation of water give a party the long-term right to water above its legal entitlement?

(2) Can one state's undiverted water be stored by the Secretary in Lake Mead as top water earmarked for that state and no longer subject to the Decree?

- One of the essential elements of the top water bank is that certain water not delivered for consumptive use is required to be stored on the Colorado River by the Secretary for the benefit of one or more specific users and to deliver and account for that water separately from the deliveries authorized by the Decree.
- Top water banking would require the Secretary deliver and account for Colorado River controlled by the U.S. outside of the system deliveries. What does that do to Upper Basin delivery requirements?

C. Arizona would support the off-stream banking for other states of currently unused Lower Basin apportionments, and water conserved based on extraordinary conservation. But we must be concerned about any surplus declaration made solely for the purpose of creating water for off-stream banking.

D. Arizona is currently pursuing legislation which would create an Arizona Water Banking Authority. The Banking Authority would be authorized to store water off-stream through artificial groundwater recharge projects for the benefit of Arizona water users and for the benefit of other Lower Basin states.

VI. *Overrun Accounting*

Arizona believes that unintentional overruns by a Colorado River contractor should be recognized through an administrative mechanism which allow a pay back of the water in later years. However, Arizona opposes planned overruns as a form of banking in reverse.

VII. *Summary*

Arizona's position is that the following proposals merit further discussion.

A. Managing the river and its reservoirs to allow for more liberal declarations of surpluses in the Lower Basin, while protecting Arizona from increased risks of shortages.

B. Allowing state-to-state transactions, facilitated by the Secretary of the Interior, in which water may be directed for use in one state after the water has been made available by intentional and verifiable forbearance in another state, pursuant to Article II(B)(67) of the *Arizona v California* decree.

C. Allowing continued off-stream banking of unused entitlements, including entitlements available under Article II(B)(6) of the decree and including water made available through extraordinary conservation efforts.

D. Providing a mechanism to mitigate inadvertent overuses ("overruns") of water.

Arizona has determined that it cannot accept the following proposals:

E. Allowing long-term diversions from the mainstream in excess of entitlements allowed by the *Arizona* decree, whether through "top water" banking, "middle water" banking, Upper Basin-to-Lower Basin transfers or tributary wheeling.

F. Party-to-party interstate water transfers not authorized by the states involved.

** 2 principles fundamental to the Law of the River:

(1) Certainty of availability - Certainty of the law.
(2) Right to grow into entitlement.

PREPARED STATEMENT OF DAVID SKIDMORE, PROJECT MANAGER, SANTA CRUZ JOINT VENTURE

Thank you, Mr. Chairman and members of the Committee, for the opportunity to provide testimony to the Energy and Water Development Subcommittee regarding the status of the In Situ Copper Mining Research Project at the Santa Cruz field test site near Casa Grande, Arizona. The project operates under a cost sharing cooperative agreement between the Bureau of Reclamation and the Santa Cruz Joint Venture (SCJV).

My name is David Skidmore. I am the project manager, employed by the SCJV. As the non-Federal partner in the project, the SCJV is the prime contractor, reporting to the Bureau of Reclamation.

In September of 1988, the SCJV signed a cooperative agreement with the U.S. Bureau of Mines to conduct a research project at the Santa Cruz site. This agreement specified that the Bureau would fund 75% of the estimated $22,000,000 project, with the remaining 25% to be funded by the SCJV.

This agreement was based on an initial FY 1988 Congressional appropriation of $3,500,000. The statement of the managers, included in the Conference Report of the Subcommittee on Interior and Related Agencies, instructed that $1,000,000 be available for the Bureau of Mines' in-house laboratory research. This activity was not to be cost-shared. The remaining $2,500,000 was directed to on-site activities and stipulated a cost sharing requirement of 25% "over the life of the project." The managers also stated that the non-Federal partner should assume operational management responsibility, while the Bureau monitored over-all project execution.

This past year, the bill making appropriations for the Department of Interior and Related Agencies for FY 1996, HR 1977, provided funds "...for, and incidental to the closure of the United States Bureau of Mines..." of which an amount "...not to exceed $5,000,000 may be used for the completion and/or transfer of certain ongoing projects..." The accompanying statement of the managers stated that "...some contracts will require oversight through a logical completion point to ensure that the Federal investment is not lost. One example is the construction associated with the Casa Grande in situ copper leaching program."

In keeping with the intent of that provision, the Bureau of Mines and the Bureau of Reclamation signed a Memorandum of Understanding, effective February 2, 1996, shifting the In Situ project, and several other on-going contracts, to the Bureau of Reclamation. Approximately $5,000,000 has been transferred to cover personnel and overhead costs for all of the contracts. It is our understanding that about $3.7 million of the $5 million is allocated to the In Situ program to support the technical personnel needed to evaluate and assure environmental compliance, complete technical documentation and technology transfer.

Also transferred with the project was the approximately $2,000,000 in funds previously appropriated for the field test. (Of the approximately $15,000,000 that has been obligated since FY 88, about $13,000,000 has been expended.)

Mr. Chairman, in situ mining is a method of extracting metal from an ore body "in place"--without excavation. Unlike conventional mining practices, there is no open pit or underground excavation of the ore-bearing rock. The chemical process being used to extract the copper from the Santa Cruz ore body has been generally used in heap leaching of previously excavated copper oxide ore. But the technology has never been used to extract copper from ore that is still in place deep in the ground, as it was deposited naturally through the millennia.

That is the purpose of this experimental program--to test the technology at depth to see if it is technically possible, environmentally safe and economically feasible.

To conduct the test, a dilute solution of sulfuric acid and water is injected into a mineralized zone, some 1,500 to 1800 feet below the surface in granitic bedrock. Situated around the injection well are four extraction, or recovery, wells which will pump the solution, now containing copper leached from the networks of fractures and veins in the bedrock, to the surface. The copper will then be removed from the solution through a process known as solvent extraction/electrowinning (SX/EW). After the copper is removed, the acid is then replaced and the solution recycled continuously through the deep ore body. Because of the SX/EW process, no smelting is necessary.

I am very pleased to say, Mr. Chairman, that as of February 12, 1996, we have begun the actual test process with the acid solution. Early indications show technical success in seeing low levels of copper in solution. It is our expectation that within a few weeks the solution will be sufficiently rich in copper that we will begin to extract metal before it is reinjected. We anticipate that the test will take two years to accumulate enough data as to determine the technical and economic feasibility, and confirm environmental protection.

It has taken a lot of time and work, and a great deal of cooperation between the partners, to get to this point. We first conducted site characterization studies to provide the technical data necessary to prepare detailed engineering designs and environmental permit applications. A "five-spot" well pattern was constructed through the proposed in situ mining test zone to provide the means to conduct hydrologic testing. Four monitor wells were also constructed through the aquifer that overlies the copper deposit.

Utilizing a salt tracer test, we were able to conduct hydrologic characterization studies, laboratory leaching and attenuation tests and micro-scale geologic characterization studies. The salt tracer tests were very encouraging and demonstrated that the injected fluids could be contained and not migrate to the overlying aquifer.

All of the field and laboratory preparation was necessary to develop an application for the Aquifer Protection Permit (APP), required by the Arizona Department of Environmental Quality. At the same time, the Bureau of Mines conducted an Environmental Assessment as required by the National Environmental Policy Act (NEPA). This process included two public hearings in Casa Grande, Arizona, which were well publicized and attended. The draft EA was made public in September of 1994, and was well received. No negative comments were expressed, or received in writing by the Bureau. On December 1, 1994, the Bureau issued a Finding of No Significant Impact (FONSI).

We have since received the Aquifer Protection Permit from the ADEQ as well as an Air Quality Permit from Pinal County, Arizona.

The permitting process was lengthy and complex. However, the APP is the first such permit ever issued for an In Situ leaching process for an unmined deposit. A large number of unknowns were explored and resolved, greatly clarifying and defining the process. Future permit applications will be far less complex for other mining operations.

With the receipt of the permits and the FONSI, we proceeded to the construction of the SX/EW plant and related surface facilities. Those facilities were completed in December. We then conducted and completed our commissioning and "shakedown" tests.

With the beginning of the final phase of the project, we are very optimistic that the In Situ tests will provide this country with a new and dependable technology to reach extensive and previously unreachable deposits with virtually no environmental impacts. It has tremendous potential in the United States.

But the technology has great promise beyond mining. The discoveries already made with the "tracer tests" have demonstrated uses in environmental remediation at mining and other waste sites. This would include underground stabilization and removal of chemical and biological contamination and could include the placement of physical barriers at a wide variety of depths. In that regard, we believe the project is compatible with the continuing mission of the Bureau of Reclamation to reduce human impacts on surface and ground water resources and improve water quality through the application of new engineering technologies.

I think it is important to point out that this lengthy and intensive process could have been successful only through a very successful partnership of Federal agencies and the private sector. If conducted only by the private sector, this information would not be available to everyone. The project should be a model for effective cost-sharing partnerships in research and experimental programs.

Mr. Chairman, the current partnership contract extends to April 30, 1998. It is at this point that the Federal project will be completed and reports distributed. However, it is estimated that currently available appropriated funds, along with the non-Federal share, will be sufficient to operate the test only until July of 1997.

We estimate the total requirement for this remaining FY 97 period to be $440,000, and respectfully ask that Committee add that sum to the appropriation for the Bureau of Reclamation for that purpose.

Again, I would like to thank you, Mr. Chairman, and members of the committee, for allowing me this time to present testimony.

PREPARED STATEMENT OF DON A. CHRISTIANSEN, CHAIRMAN, UTAH RECLAMATION MITIGATION AND CONSERVATION COMMISSION

Good afternoon, Chairman Myers and members of the Subcommittee. I am Don Christiansen, Chairman of the Utah Reclamation Mitigation and Conservation Commission in Salt Lake City, Utah

We deeply appreciate the opportunity to appear before you today in support of the FY 1997 budget for implementation of the Central Utah Project Completion Act. The Act authorized the Commission to plan and coordinate the fish, wildlife, and recreation mitigation for the Central Utah Project and other Federal reclamation projects in Utah.

The Commission has been successful in bringing the various Federal, State, and local agencies and interest groups involved in Federal reclamation mitigation together in a cooperative program to address the needs of fish, wildlife, and recreation resources.

Our major efforts to date have focused on wetland restoration along the Great Salt Lake We have also implemented projects that have stabilized the water levels in high mountain lakes to restore conditions for fisheries and recreation. Other ongoing projects include acquisition of lands to provide for fish and wildlife habitat and recreational access and the rehabilitation of streams and recovery of native fish populations We appreciate the support from the Subcommittee that has permitted this success

In the past year we have also initiated development of a five-year Mitigation and Conservation Plan that has included widespread public involvement from Federal and State agencies, local governments, landowners and interest groups Public response to the Commission's Preliminary Draft Program earlier this month was positive and enthusiastic The Final Plan, scheduled for release on May 3 of this year will establish a comprehensive program that will allow all of the cooperating natural resource management agencies to focus their mitigation efforts in the most effective manner possible

Our FY 1997 budget request provides $17 million to continue the planning and other mitigation activities necessary for completion of the Central Utah Project The FY 1997 budget will allow for continuation of work to establish the Utah Lake Wetlands Preserve, which will provide fish and wildlife habitat and preserve water quality for both consumptive and recreational uses Other authorized projects will restore stream flows and riparian habitats in the Provo and Strawberry River basins, acquire wetlands along the Great Salt Lake and the Jordan River, and substantially improve fish hatchery production to meet the high level of demand for fishing on Federal Reclamation reservoirs in the State

Mr Chairman, we are pleased with the progress we have made and hope we will have your continued support in carrying out our mission. Thank you

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PREPARED STATEMENT OF GARY PALMER, CHAIRMAN, CENTRAL UTAH WATER CONSERVANCY DISTRICT

Chairman Myers, Congressman Bevill and members of the Committee. It is with some degree of sadness that we come to you today in what will be our final appearance before Chairman Myers and Rep. Bevill. For two decades officials of the Central Utah Water Conservancy District have traveled to Washington, D.C. during "tin cup week" to present our annual funding request for the Central Utah Project. Speaking on behalf of all those who have gone before us, we thank both of you for your graciousness and for your continuing support. We regret the decision you have independently made to retire from the

Congress, but we want you to know that if either of you are traveling in the west during your newly found free time, please come to see us so we can return the hospitality you have shown to us for so many years.

I am pleased to be able to report to you today that completion of the Central Utah Project is both on time and under budget. Following the tight time frames contained in the Central Utah Project Completion Act (P.L. 102-575) passed in 1992, the District will be presenting later this summer to the Secretary of the Interior for his approval final feasibility studies and NEPA compliance documents for the three remaining unconstructed components of the CUP; the Spanish Fork to Nephi Conveyance facility (SFN), the Wasatch County Water Efficiency Project and the Uintah Basin Replacement Projects. The District has followed a rigorous public involvement process and we have responded to the needs and concerns of Utah's citizens. The result is that we will have a water project that will deliver significant water supply benefits to more people and at less cost than was previously planned. More care has been taken concerning environmental impacts of these projects and environmental mitigation and some enhancements have been planned.

For Fiscal Year 1997 Mr. Chairman, the District is asking for a total Central Utah Project appropriation of $43,614,000 which includes funding for the activities of the District as well as those of the Utah Reclamation, Mitigation and Conservation Commission (URMCC). $24.5 million of these funds will come to the District to conclude the planning and NEPA approval process which clear the way for construction on the remaining authorized facilities of the project.

With the funding provided by your subcommittee last year we began construction of the Diamond Fork System. The major portion of the District's FY 97 request, almost $18 million, is to complete construction of the Diamond Fork System which will finally bring water from the Colorado River Basin over to the Bonneville basin for use by the population which resides along the Wasatch Front.

In the area of water conservation Mr. Chairman, during the first two years of the program the District has received over 65 applications for water conservation projects under section 207 of CUPCA. Of these, we have approved funding for implementation of 13 projects which will result in 12,500 acre-feet of conserved water each year. This year we will review additional projects from which we will select several to help take us to our goal of 39,294 acre feet of conserved water annually. Our FY 97 request includes $2 million for the fifty percent federal share of these water conservation projects.

In addition to the District's request for funding, Mr. Chairman we also ask for $17 million for the Utah Reclamation, Mitigation and Conservation Commission to continue its important work of providing environmental mitigation for the construction of the CUP. I will not go into detail with respect to how this funding will be used as the District's General Manager Don Christiansen is here and he also serves as Chairman of the Commission and that information is included in his testimony on the Commission's behalf.

Finally, it is critically important Mr. Chairman that the Subcommittee continue to appropriate funds from the budget of the Western Area Power Administration representing the CRSP powerusers contribution to the CUPCA Title IV mitigation trust account. The State of Utah has appropriated its voluntary contribution of over $ 3 million for the account for FY 97 and the District's contribution has also been budgeted. It is imperative for the federal contributions to continue as authorized in CUPCA to be matched with the state and local contributions to keep this trust account funded.

Once again Mr. Chairman and Rep. Bevill I want to thank you for the long association we have had with you and we wish you the best as you move forward into the next phase of your lives. Thank You.

PREPARED STATEMENT OF IRIS Z. BLETSCH, CHAIRMAN, CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT BOARD OF DIRECTORS

Mr. Chairman, members of the Committee, I'm Iris Bletsch, the Chairman of the Clark County Regional Flood Control District Board of Directors. With me today is Gale Fraser, the General Manager and Chief Engineer of the Flood Control District. I would like to start by thanking you for allowing us the opportunity to appear before you today. I am here to present testimony in support of the appropriations necessary for the U.S. Army Corps of Engineers to continue construction of the Tropicana/Flamingo Washes flood control project. This project is located in the rapidly growing Las Vegas Valley in Southern Nevada.

The Las Vegas Valley has experienced unprecedented growth over the past twenty-five years and all signs indicate that this growth will continue for several more years. People have moved into the area from all parts of the nation to seek employment, provide necessary services, and become part of this dynamic community. Clark County's population has boomed from 608,000 to slightly more than 1 million during the past decade. After taking into account the number of people leaving the area, it is still estimated that 3,200 people relocate to the Las Vegas Valley every month of the year. The latest statistics show that nearly 19,500 homes are built annually. Once all these factors are combined, the result is that the Las Vegas Valley is one of the fastest growing areas in the nation.

Since 1960, the area has also experienced at least seven "million dollar floods" -- floods which caused in excess of $1,000,000 in damages to public and private properties. In that same time frame at least 23 people have lost their lives in nine separate flash flood events. In 1990 three people died in separate flooding incidents, two drownings occurred in 1992, and in 1995 there was still another death by drowning.

Much of this devastation and loss of life has occurred along the Flamingo Wash. In all likelihood, the level of damages and deaths would have been severely diminished or would have been non-existent had the projects proposed by the Corps of Engineers been in place. These facilities are designed to collect the flood flows from a 160 square mile contributing drainage area of the Las Vegas Valley at non-damaging rates. Because flow over the alluvial fans which ring the Valley is so unpredictable in terms of the direction it will take during any given flood, all of the components of the Corps' plan are critical.

The plan identified in the Corps' Feasibility Study for the Tropicana and Flamingo Washes Project includes four debris basins, four detention basins, 28 miles of primary channels, and a network of lateral collector channels. The debris basins are designed to collect flood flows from undeveloped areas at the headwaters of the alluvial fans and trap large bedload debris before it enters the channels and causes erosion damage. The detention basins will function to greatly reduce the magnitude of the flood flows so that the flows can be safely released through the developed urbanized area at non-damaging rates. The outflow from the debris basins and the reduced flows from the detention basins will be contained in the primary channel system which will also serve as outfalls for the lateral collector channels. While this latter element is considered to be a non-Federal element of the entire plan, it is a necessary element for the plan to function properly.

The Feasibility Report for this project was completed in October 1991, and Congressional authorization was obtained in the Water Resources Development Act (WRDA) of 1992. The first federal appropriations to initiate construction of the project became available through the Energy and Water Resources Development Appropriations Bill signed into law by the President in October 1993. Subsequent appropriations have allowed for the continued implementation of the project. Appropriations to date have totaled $17,685,000. The total cost of the project is $217,500,000. It is anticipated that the entire project will be completed by the year 2002.

Certain elements of the Corps' plan have already been constructed by the local community but require modifications in order to fit into the Corps' plan and fulfill the need for a "total fan approach" to the flooding problems of the Las Vegas Valley.

The Red Rock Detention Basin was constructed by Clark County in 1985. In order to increase the level of downstream protection provided by this feature, the releases from the basin will be reduced and its capacity to hold flood waters will be enhanced by a combination of increasing the height of the embankment, and excavating additional material from the impoundment area. Construction began in September 1995 and is well underway. It is expected that this feature of the overall project will be completed in May 1996. Although this will be the first feature constructed, the immediate benefits will be the removal of approximately five square miles of alluvial fan flood zones.

Clark County also constructed the Upper Flamingo Detention Basin. This facility was completed in February 1992 and is one of the main components of the entire program. Under the Corps's plan, the releases from this feature will also be reduced and its storage capacity increased. The Flood Control District and Clark County have been working with the local development community in an effort to have them remove the excess sand and gravel from the impoundment area of this facility. Our goal is the have the construction contractor for the project remove this surplus material for their own use at no cost either to the Federal or local governments, thus providing a significant savings to total project costs as well as to the construction schedule.

As local sponsors for this important flood control project, both the Clark County Regional Flood Control District and the Clark County Public Works Department anxiously anticipate the construction start of each feature of this project. The Project Cooperation Agreement was fully executed in February 1995 and construction of the different features is expected to continue over the next seven years. The District has completed a right-of-way acquisition plan which identifies the land ownership of all of the parcels in the area of the Corps' project. As soon as the Corps established the alignment for each individual feature of the project we are in a position that will allow us to acquire the necessary parcels the most expeditious manner possible. The District has also been setting aside over $600,000 each month in order to accrue sufficient funds to meet our share of the total project costs. I realize that this may not sound like a significant amount in terms of the Federal budget; however, it is important to realize that $600,000 is roughly 25 percent of the District's total monthly revenues. Obviously, this is a very important public works project to this thriving community.

Details of the Administration's Fiscal Year 1997 Civil Works Budget Request will not be made available until after the appropriation hearings. Therefore, testimony regarding the budget request is based on the Project Cooperation Agreement and accompanying financial plan approved by the Corps of Engineers in February 1995. The approved financial plan for fiscal year 1997 identifies required federal appropriations of $23,178,000. This funding will allow for the continued design and construction of this desperately needed flood control project.

Mr. Chairman, this is an important public safety project designed to provide flood protection for one of the fastest growing urban areas in the nation. We ask that you provide the Secretary of the Army with the $23,178,000 as stated in the approved financial plan for this project in order to allow the U.S. Army Corps of Engineers to continue the design and construction of additional phases of this project. Mr. Chairman, we also respectfully request the opportunity to offer additional comments after the detailed Administration's Fiscal Year 1997 Civil Works Budget Request is released.

Finally, Mr. Chairman and members of the committee, I'm sure you are aware that proactive flood control is the investment required to prevent loss of life and damages. Flood control is a wise investment that will, in the long run, pay for itself by preserving life and property and reducing the probability of repeatedly asking the federal government for disaster assistance. Therefore, when balancing the federal budget, a thorough analysis should prove that there will be substantial future federal savings in disaster assistance that will warrant the continued level of funding through the civil works budget appropriations.

Thank you for your time. Mr. Fraser and I will be happy to answer any questions you may have.

LETTER FROM GOV. JIM GERINGER, STATE OF WYOMING

March 11, 1996

The Honorable Pete Domenici, Chairman
Senate Appropriations Subcommittee
on Energy and Water Development
132 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Domenici:

I am writing on behalf of the State of Wyoming, one of three States participating in the multi-agency Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin ongoing since 1988, to request your support for an appropriation in FY 1997 of $7.9 million to the U.S. Bureau of Reclamation (Reclamation) for activities associated with the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin ("the Recovery Program"). We expect that this amount will be included in the Administration's proposed FY 1997 budget for Reclamation under an item labeled "Construction-Endangered Species Recovery Implementation Program-Upper Colorado-Upper Colorado Region-Various Studies."

Beginning in FY 1994, the Recovery Program initiated specific studies and action in preparation for the construction activities necessary to recover the endangered fishes. These activities included restoration of fish passage to historical habitat, instream flow protection on the Colorado River (mainstem), Gunnison River, and Yampa River (including the enlargement of the existing Elkhead Reservoir), and the reoperation or modification of existing projects. Activities were also initiated on several fish habitat restoration projects, including the restoration of flooded bottomlands and wetlands in Utah and Colorado. Construction of the Redlands Fish Passage near Grand Junction will soon be completed. The FY 1997 funds we are requesting will enable these vital activities to continue and to be successfully implemented in subsequent fiscal years.

The Recovery Program is a mutually-supported program involving the States of Colorado, Utah, and Wyoming, environmental organizations, power users, water development interests, Reclamation, the U.S. Fish and Wildlife Service, and the Western Area Power Administration. This Recovery Program, now in its eighth year of operation, has the objective of cooperatively recovering the four endangered fishes while water development proceeds in compliance with the Endangered Species Act.

In FY 1988, Congress appropriated $1,000,000 to Reclamation for the purpose of securing water for the endangered fishes. These funds have been used to advance that purpose. Through FY 1995, $522,100 from the previous appropriation has been expended and $133,300 will be used in FY 1996. In FY 1997, we will continue to use the remaining $344,800 to acquire water and water rights for the endangered fishes.

The State of Wyoming would very much appreciate your support of this important multi-state, multi-agency program. We look forward to working with you in the future and thank you for your consideration of this request for funding support.

With best regards, I am

LETTER FROM GOV. ROY ROMER, STATE OF COLORADO

March 15, 1996

The Honorable Peter Domenici
Senate Appropriations Subcommittee on
Energy and Water Development
132 Dirksen Senate Office
Washington, D.C. 20510

Dear Chairman Domenici.

I am writing to request your support for an appropriation in fiscal year 1997 of $7.9 million to the U.S. Bureau of Reclamation (Reclamation) for activities associated with the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin ("Recovery Program"). I expect this amount will be included in the Administration's proposed fiscal year 1997 budget for Reclamation under an item labeled "Construction-Endangered Species Recovery Implementation Program-Upper Colorado-Upper Colorado Region-Various Studies."

The Recovery Program is a mutually supported program involving the states of Colorado, Utah and Wyoming, environmental organizations, power users, water development interests, Reclamation, the U.S. Fish and Wildlife Service, and the Western Area Power Administration. This Recovery Program, now in its eighth year of operation, has the objective of cooperatively recovering the four endangered fish while water development moves forward in compliance with the Endangered Species Act.

Beginning in fiscal year 1994, the Recovery Program initiated specific studies and action in preparation for the construction activities necessary to recover the endangered fish. These activities included restoration of fish passage to historical habitat, instream flow protection on the Colorado River (mainstem), Gunnison River, and Yampa River (including enlargement of the existing Elkhead Reservoir), and reoperation or modification of existing projects. Activities also were initiated on several fish habitat restoration projects, including restoration of flooded bottomlands and wetlands in Utah and Colorado. With 1996 funds, the Redlands Fish Passage near Grand Junction was completed. The fiscal year 1997 funds we are requesting will enable these vital activities to continue and to be successfully implemented in subsequent fiscal years.

In fiscal year 1988, Congress appropriated $1 million to Reclamation for securing water for the endangered fish. These funds have been used to advance that purpose. Through fiscal year 1995, $522,100 from the previous appropriation was used, and $133,300 will be used in fiscal year 1996. In fiscal year 1997, we will continue to use the remaining $344,800 to acquire water and water rights for the endangered fish.

I would very much appreciate your support of this important multi-state, multi-agency program, and look forward to working with you in the future. Thank you for your consideration.

PREPARED STATEMENT OF JACK A. BARNETT, EXECUTIVE DIRECTOR, COLORADO RIVER BASIN SALINITY CONTROL FORUM

This testimony is in support of funding for the Colorado River Basin salinity control program. Congress has designated the Department of Interior, Bureau of Reclamation, to be the lead agency for salinity control on the Colorado River. This role and the authorized program was refined and confirmed by the Congress last year when PL 104-20 was enacted into law. A total of $11,500,000 is needed this year to implement the needed and authorized program. Failure to appropriate these funds will result in significant economic damage and threaten the compliance with adopted water quality standards. The Forum supports the President's request for $5,500,000 for the originally authorized program. The Forum also supports the President's request for $5,000,000 for the new basin-wide program, however the Forum believes that the request falls $1,000,000 short of the funds that need to be expended in FY 97 to ensure the implementation of a program that will protect adopted water quality standards.

OVERVIEW

The Colorado River Basin salinity control program was authorized by Congress in 1974. The Title I portion of the Colorado River Basin Salinity Control Act responded to commitments that the United States had made via a treaty with Mexico with respect to the quality of water being delivered to Mexico below Imperial Dam. Title II of the Act established a program to respond to salinity control needs of Colorado River water users in the United States and to comply with the mandates of the then newly legislated Clean Water Act. Initially, the Secretary of the Interior and the Bureau of Reclamation were given the lead Federal role by the Congress. Important modifications to the program were made by the Congress last year as legislation creating PL 104-20 was passed. This testimony is in support of funding for the Title II program.

After a decade of investigative effort, the Basin states concluded that the Salinity Control Act needed to be amended. Congress revised the Act in 1984. That revision, while keeping the Secretary of the Interior as lead coordinator for Colorado River Basin salinity control efforts, also gave new salinity control responsibilities to the Department of Agriculture, and to a sister agency of the Bureau of Reclamation—the Bureau of Land Management. Congress has charged the Administration with implementing the most cost-effective (dollars per ton of salt removed) program practicable. The Basin states are strongly supportive of that concept, as the Basin states now cost share 30 percent of federal expenditures for the salinity control program, while in addition proceeding to implement their own salinity control efforts in the Colorado River system.

Since the congressional mandates of nearly two decades ago, much has been learned about the impact of salts in the Colorado River system. The Bureau of Reclamation has recently completed studies on the economic impact of these salts. Reclamation recognizes that the damages to United States' water users alone may soon be approaching $1 billion per year.

The Colorado River Basin Salinity Control Forum (Forum) has become the seven-state coordinating body for interfacing with federal agencies and Congress to support the implementation of a program necessary to control the salinity of the river system. Forum members are appointed by the governors of the seven Colorado River Basin states. In close cooperation with the Environmental Protection Agency (EPA) and under requirements of the Clean Water Act, every three years the Forum prepares a formal report analyzing the salinity of the Colorado River, anticipated future salinity, and the program necessary to keep the salinities at or below the levels measured in the river system in 1972.

In setting water quality standards for the Colorado River system, the salinity levels measured at Imperial, Parker, and Hoover Dams in 1972 have been identified as the numeric criteria. The plan necessary for controlling salinity has been captioned the "plan of implementation." Most recently, the Forum completed its 1993 Review of water quality standards, and the Colorado River Basin states have submitted this report to EPA. The required 1996 review is now in process. If adequate funds are not appropriated, state and federal agencies involved are in agreement that the numeric criteria will be exceeded and damage from the high salt levels in the water will be widespread and very significant.

JUSTIFICATION

The $11,500,000 requested by the Forum on behalf of the seven Colorado River Basin states is the level of funding necessary to proceed with the Bureau of Reclamation's portion of the plan of implementation. Reclamation has agreed that this funding level is appropriate if salinity in the Colorado River is to be controlled so as not to exceed the established numeric criteria and threaten the associated water quality standards. Currently, there are two authorizations provided by Congress which require appropriation. The first is what may be for the on-going or long established program authorized by Congress in 1974. The spending ceiling for this program will be reached in the next two or three fiscal years and then funds for that portion of the program will be terminated. The second authorization, often termed the basin-wide program, was authorized by Congress in 1995. It gives to Reclamation new latitude and flexibility in seeking the most cost-effective salinity control opportunities.

DETAILS CONCERNING THE REQUESTED APPROPRIATION

On-going contracts with water users in the Grand Valley of Colorado, authorized under the original Salinity Control Act, require funds for the forthcoming fiscal year and many of the activities associated with the long-established program will be drawing to a close. Bureau of Reclamation has neared completion of the Paradox Valley unit which involves the collection of brines in the Paradox Valley of Colorado and the injection of those brines into deep aquifers through an injection well. The construction phase of this program has drawn to a close and the continued operation of the project will be funded through Operation and Maintenance funds. In additional to the dollars identified above, the Salinity Control Forum urges the Congress to appropriate necessary funds to continue to maintain and operate salinity control facilities as they are completed and placed into long-term operation. New programs and new efforts will be contracted for in the forthcoming year as the Bureau of Reclamation implements their basin-wide program authorized by the Congress in 1995. Funds will be used on a variety of projects and the process for selecting those projects is set forth in a report to the Congress that was required by the 1995 act.

In addition, the Forum supports necessary funding to allow for continued general investigation of the salinity control program and supports the President's request for $360,000. It is important that the Bureau of Reclamation have planning staff in place, properly funded, so that the progress of the program can be analyzed, coordination between various federal and state agencies can be accomplished, and the identification of the needed future of the program can be accomplished.

PREPARED STATEMENT OF THE STATE OF COLORADO

Summary of Requests

Colorado supports the Colorado River Basin Salinity Control Forum in seeking an appropriation of $11,500,000 for the Bureau of Reclamation in FY 1997, for completion of construction of salinity control projects in Colorado and initiation of a new basinwide program as recently authorized by Congress.

Introduction

This statement is submitted by the Honorable Roy Romer, Governor of Colorado; Mr. James Lochhead, Executive Director of the Colorado Department of Natural Resources; and Daries C. Lile, Director of the Colorado Water Conservation Board, which is the state agency charged with the development of Colorado's water resources.

Colorado River Salinity Program Appropriation

The seven Colorado River Basin States have endorsed a coordinated, basinwide approach to the reduction of salinity in the Colorado River. The seven states, acting through the Colorado River Basin Salinity Control Forum and Advisory Council, have filed a detailed statement with this committee. The Forum seeks, and Colorado supports, an appropriation of $11,500,000 as set forth therein.

The salinity control units currently being constructed by the Bureau of Reclamation (Reclamation) in Colorado are an integral component of the overall salinity control program. As a headwater state, salinity control in Colorado is particularly important to assure downstream water quality for the Basin. The expenditure of identified Reclamation construction program funds ($5,500,000) will occur on projects located within the State of Colorado: Paradox Valley, Grand Valley, and Lower Gunnison. Colorado is particularly pleased that Reclamation is nearing completion of the highly successful winter water replacement program in the Lower Gunnison Unit. In addition, the ongoing efforts to complete the Paradox and the Grand Valley Units require continued funding.

We also support the "new program" in which Reclamation was recently authorized to develop a variety of cost-effective salinity control activities in cooperation with local water users. The Forum seeks and Colorado supports funding for this new approach in an amount of $6.0 million. This innovative effort will implement least-cost salinity control projects throughout the Basin. In all instances, local water users have worked closely with Reclamation to enable these salinity control units to go forward. Colorado has met the schedules requested by Reclamation and sufficient funding to remain on schedule should be provided for FY 1997.

The State of Colorado recognizes the extraordinary pressures on Congress and the President to resolve the difficult budget situation facing the nation. However, studies have repeatedly demonstrated that delays in implementation of salinity controls do not merely defer expenditures into future years, but result in the need for a larger, more costly overall program. This is a result of the increased accumulation of salt that enters the system during the period of delay. This situation has already occurred in earlier years, and the State of Colorado strongly urges that the full amount needed to maintain the program schedule be appropriated in FY 1997.

In the future, additional amounts of salt reduction, beyond the capability of presently planned and authorized control units, will be required to meet the water quality objectives which benefit all Basin water users. The State of Colorado therefore also supports a budget for the plan formulation and technical assistance necessary for Reclamation to identify further cost-effective salinity control strategies and projects throughout the Basin. Finally, the State of Colorado supports adequate funding for the operation and maintenance of all completed salinity control projects throughout the Basin.

Thank you for your continued support.

PREPARED STATEMENT OF GORDON W. FASSETT, WYOMING STATE ENGINEER

This testimony is submitted in support of a Fiscal Year 1997 appropriation of $11,860,000 for the Bureau of Reclamation's Colorado River Salinity Control Programs. You recently received testimony from the Colorado River Basin Salinity Control Forum (Forum) submitted by the Forum's Executive Director, Jack Barnett, dated March 26, 1996. The State of Wyoming concurs in the FY 1997 funding requests and justification statements set forth in the Forum's testimony.

In addition to being the Wyoming State Engineer, I represent the State of Wyoming on the Forum and the Colorado River Basin Salinity Control Advisory Council (Council). The Council was created by Section 204 of the 1974 Colorado River Basin Salinity Control Act, Public Law 93-320, and like the Forum, is composed of gubernatorial representatives of the seven Colorado River Basin states. Both the Council and Forum serve important liaison roles among the seven states, the Secretaries of the Interior and Agriculture and the Administrator of the Environmental Protection Agency (EPA). The Council is directed by statute to advise these federal officials on the progress of the federal/state cost-shared, basin-wide salinity control program, and annually recommends to the Federal agencies what level of funding it believes are required to allow the Program to meet its objective of assuring continuing compliance with the basin-wide water quality standards.

The Council met last October and developed funding recommendations for Fiscal Years 1997 and 1998 based on the progress the Program is making in reducing the salt load in the Colorado River System. The Council believes that $5,500,000 should be appropriated to the Bureau of Reclamation for the original Colorado River Basin Salinity Control Program (authorized under P.L. 93-320 and amended by P.L. 98-569) activities and that $6,000,000 needs to be appropriated in Fiscal Year 1997 for the additional program authorized in 1995 by P.L. 104-20.

The Forum's testimony dated March 26, 1996 supports the appropriation of $11,500,000 for the Bureau of Reclamation's Colorado River Basin Salinity Control Programs, along with $360,000 for associated general investigations. The Forum supports the President's request of $5,500,000 for the original program, but believes an additional million dollars above the President's Fiscal Year 1997 budget request of $5,000,000 for the program authorized in 1995 should be appropriated for the fiscal year beginning October 1, 1996. Speaking for the three Wyoming representatives who sit on the Advisory Council and the Forum, I wish to state our concurrence with the Forum's testimony supporting these funding levels to continue this important, basin-wide Program.

If the necessary levels of funding are not provided for the Colorado River Salinity Control Program, there is an increased probability that the numeric criteria set in the water quality standards for the Colorado River may be exceeded. Delaying or deferring adequate funding for the Program at this time will create the need for a much more expensive salinity control effort in the future to assure that the Colorado River Basin states are able to meet the water quality standards for the Colorado River. "Catch-up" funding in future fiscal years will require the expenditure of greater sums of money, increase the likelihood that the numeric criteria for Colorado River water quality are exceeded, and create undue burdens and difficulties for one of the most successful Federal/State cooperative nonpoint source pollution control programs in the United States.

I wish to thank you for the opportunity to submit this testimony, and would request, in addition to your consideration of its contents, that you make it a part of the formal hearing record concerning FY 1997 appropriations for the Bureau of Reclamation.

PREPARED STATEMENT OF THOMAS F. DONNELLY, EXECUTIVE VICE PRESIDENT, NATIONAL WATER RESOURCES ASSOCIATION

Colorado River Salinity Control

The National Water Resources Association (NWRA) is a nonprofit federation of associations and individuals dedicated to the conservation, enhancement, and efficient management of our

Nation's most precious natural resource, WATER. The NWRA is the oldest and most active national association concerned with water resources policy and development. Its strength is a reflection of the tremendous "grassroots" participation it has generated on virtually every national issue affecting western water conservation, management, and development.

The Colorado River provides important water supplies for 18 million Americans in the seven basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. These people live in the most arid portion of the United States and rely heavily upon the Colorado River for municipal and industrial water supplies, as well as for irrigation for 1.7 million acres of prime agricultural land. In addition, the Colorado River supplies water for half a million people and half a million acres of irrigated farm lands in the Republic of Mexico.

The seven Colorado River basin states and their water users have been working with Congress, the Executive branch of the federal government, and the courts for many years to assure a fair and effective allocation of the river's water supply. Salinity levels in the Colorado River have become a major issue with which the Colorado River Basin states have had to deal. Without implementation of salinity control measures, Colorado River salinity levels are projected to increase to about 1,000 mg/L by the year 2010. The economic damages currently experienced by municipal, industrial and agricultural users of Colorado River water in the Unites States alone amount to about $500 million per year and are expected to double by the end of the century.

In 1974, Congress enacted the Colorado River Basin Salinity Control Act (PL 93-320) to implement a 1973 salinity agreement with Mexico as well as a program for controlling the Colorado River's salinity level within the United States. The seven Colorado River basin states adopted, and the U.S. Environmental Protection Agency (E.P.A.) approved, numeric salinity control criteria for the river and a plan for implementing salinity control measures to maintain that criteria, while the basin states continue to develop their respective shares of Colorado River water. In 1984, PL 93-320 was amended to provide additional salinity control activities including a new voluntary, cost-shared, on farm salinity control program by the Department of Agriculture as well as a larger percentage of nonfederal cost sharing for Department of Interior programs so that the numeric criteria can be maintained in a cost-effective manner. In 1995, the law was amended to increase the Bureau of Reclamation's appropriations ceiling for construction of new salinity control projects. The amendment also authorizes Reclamation to implement new measures basin-wide one month after the submittal of a planning report to the appropriate committees of Congress for consideration.

Therefore, we urge the Committee to continue to implement the measures to control Colorado River salinity as authorized by law in order to maintain the numeric salinity criteria adopted by the seven Colorado River Basin states and approved by E.P.A. We also urge the Committee to maintain a specific line-item for the Colorado River Basin Salinity Control Program in the Agriculture, Rural Development and Related Agencies as well as the Energy and Water Development appropriation bills.

The Colorado River Basin Salinity Control Forum, the interstate organization responsible for coordinating the Basin states' salinity control efforts, has recommended that $12.8 million be appropriated for Reclamation's Colorado River Basin Salinity Control Program and $9.8 million for the Department of Agriculture in FY 1997. The National Water Resources Association strongly supports the Forum's recommendation and urges the Committee's support for this important program.

LETTER FROM JOHN R. WODRASKA, GENERAL MANAGER, METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, LOS ANGELES, CA

April 17, 1996

The Honorable Pete Domenici
Chairman
Subcommittee on Energy and
Water Development
Senate Committee on Appropriations
131 Senate Dirksen Office Building
Washington, D.C. 20510-6030

Dear Senator Domenici:

Fiscal Year 1997 Funding for the Bureau of
Reclamation's Colorado River Salinity Control Program

I am writing to request your support for adequate federal funding for the Department of the Interior's Colorado River Salinity Control Program (Program). This Program was authorized by Congress under the Colorado River Basin Salinity Control Act and the Clean Water Act. The Metropolitan Water District of Southern California (Metropolitan) is responsible for meeting the supplemental water requirements of 16 million people and the economy which supports them. In 1995, Colorado River water was used to meet the majority of these supplemental needs.

Metropolitan is concerned with maintaining the quality of this vital source of water supply. The President's proposed fiscal year 1997 budget provides funding of $10.5 million for the Bureau of Reclamation's (Reclamation) Title II salinity control program. The Colorado River Board of California and the Colorado River Basin Salinity Control Forum, the interstate organization responsible for coordinating the Basin states' salinity control efforts, have recommended that an additional $1.0 million be appropriated for a total funding of $11.5 million. This level of funding is necessary to meet the salinity control activities schedule in order to maintain the water quality standards adopted by the seven Colorado River Basin states and approved by the Environmental Protection Agency. These funds are required for ongoing contracts in the Grand Valley and Lower Gunnison areas of Colorado. In addition, the funds are necessary for implementation of new salinity control measures and further analysis of salinity control opportunities.

Metropolitan concurs with the recommended funding level of $11.5 million for construction and general investigation for Reclamation's Title II program. Finally, Metropolitan supports funding levels for Reclamation that will ensure adequate operation and maintenance of constructed salinity control facilities. Your assistance and support in ensuring sufficient funding of the Colorado River Salinity Control Program for 1997 and beyond would be greatly appreciated by Metropolitan.

PACIFIC NORTHWEST WATER RESOURCE PROJECTS

PREPARED STATEMENT OF JOHN ETCHART, CHAIRMAN, NORTHWEST POWER PLANNING COUNCIL

Mr. Chairman and members of the subcommittee, my name is John Etchart, and I am chairman of the Northwest Power Planning Council. I appreciate the opportunity to submit written testimony in support of the Administration's Fiscal Year 1997 budget request for several programs under the jurisdiction of the Energy and Water Development Subcommittee. The Council was established by Congress in 1980, and created as an interstate compact by the states of Idaho, Montana, Oregon and Washington. Its purpose is to develop a 20-year regional electric power plan to ensure the Pacific Northwest an adequate supply of power at the lowest possible cost. The plan is designed to ensure that the region only acquires resources it needs and that it acquires the lowest-cost resources first. The Council also was directed to develop a major program to rebuild fish and wildlife resources that have been harmed by hydroelectric development in the Columbia River Basin. The Council carries out its responsibilities under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-501).

Congress recognized in the Northwest Power Act that the resources of the Columbia River Basin are important to both the region and the nation. Both the Council's power plan and fish and wildlife program were developed under the mandates of the Act, in which Congress provided direction and the framework for the Council as a policy and planning body to implement its actions through the federal agencies. Three federal agencies under the jurisdiction of the Subcommittee, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration all administer programs that are critically important to the Columbia River Basin. The Council works closely with all three agencies in fulfilling its statutory responsibilities to develop its regional power plan and implement its Columbia River Basin Fish and Wildlife Program. The relationship among the Council and the agencies is unique and reflects Congress' desire to provide an effective management structure for the resources in the basin. Through this arrangement, the federal agencies and the four Northwest states share funding, implementation, and regulatory responsibilities in the management of the basin's power and fish and wildlife resources.

Because of these shared and sometimes overlapping responsibilities, the Council has a continuing interest in the budgets of the three federal agencies. The Council's fish and wildlife program is funded by a combination of both revenues from electricity sales and Federal appropriations. While a significant portion of the fish and wildlife program is funded by Bonneville, the other Federal agencies are expected to contribute appropriated funds well in excess of $100 million in the basin in Fiscal Year 1997. A large portion of these funds, especially those appropriated to the Corps and Bureau of Reclamation for construction and operations and maintenance, will be repaid by the region's electric ratepayers.

Fourth Northwest Conservation and Electric Power Plan

In accordance with the Act, the Council is in the process of reviewing and updating its power plan. The Northwest Power Act requires the Council to review the power plan at least every five years. The last amendment of the plan was adopted by the Council in April 1991. The draft version of the Council's fourth power plan was adopted by the Council on March 13, 1996, and is available to the public for review and comment.

The purpose of the plan, as required by the Northwest Power Act, is to assure the region of an adequate, efficient, economical and reliable power supply. Historically, the plan has incorporated a broad and detailed review of electrical resources that balance sometimes competing attributes. Actions derived from this careful review have charted the least expensive (both in economic and environmental terms), yet most flexible course the region can take down the uncertain path of resource acquisition to meet demand for electricity in the future.

The electricity industry in the Pacific Northwest, and the rest of the nation, is currently in the midst of significant restructuring. This transformation will move the industry from the regulated monopoly structure of the past 50 years to a more competitive model. The governors of the four Northwest states, in order to seize the opportunities and moderate the risks inherent in the transition to competitive electricity markets, have convened a "Comprehensive Review of the Northwest Energy System." The governors appointed a broadly representative steering committee to study the system and make recommendations about its transformation. The steering committee is scheduled to present its recommendations to the region's governors in December 1996. The governors will then take the recommendations to Congress, Northwest Indian tribes, and state legislatures.

The fast-approaching changes to the electricity industry require the Council to take a new approach to the development of its power plan amendments. Consequently, the draft contains few recommended actions or policy decisions. It is instead a reference tool, containing background on the industry and its current restructuring, as well as analysis of some of the major issues that must be addressed as the Northwest advances toward its new energy future. Since much of the focus of the draft power plan is related to the governor's review of the energy system, the Council will not finalize the plan until after the Comprehensive Review is concluded in December.

180 Day Review of Fish and Wildlife Governance in the Columbia River Basin

Section 508(c) of the Energy and Water Development Appropriations Act for Fiscal Year 1996, enacted November 13, 1995, directed the Northwest Power Planning Council to report to Congress within 180 days "regarding the most appropriate governance structure to allow more effective regional control over efforts to conserve and enhance anadromous and resident fish and wildlife within the Federal Columbia River Power System."

To respond to Congress' directive, this past December and early January, the Council sought advice from diverse parties on alternative approaches that might be taken to fish and wildlife governance reform. On February 1 and 2, the Council conducted a facilitated workshop in which key alternatives were probed, elaborated and evaluated. A report by Professor David Getches, the workshop facilitator, was submitted to the Council on February 12. Relying heavily on the recommendations in that report, the Council, on February 21, released a draft paper, "Proposals for Fish and Wildlife Governance in the Columbia River Basin," (Council document #96-4) for public review and comment.

The report raises three potential ways in which fish and wildlife management may be enhanced. These include: 1) administrative actions at both the federal and state levels which would require no legislative changes, 2) various limited legislative changes which would amend the Northwest Power Act to require all federal agencies to act consistent with the Council's fish and wildlife program, and 3) broader legislative changes to the Northwest Power Act or entirely new legislation. The public comment period extended through April 1, and the Council currently is in the process of reviewing the comments, and drafting its final report to the Congress. The Council expects to submit the report to Congress by the middle of May. The Council appreciates the opportunity provided by Congress to make recommendations to improve the management of the basin's fish and wildlife resources, and looks forward to further discussions when Congress begins deliberations on this issue.

Columbia River Basin Fish and Wildlife Program

The Council's fish and wildlife program complements its power plan and is designed to protect, mitigate and enhance fish and wildlife, and related spawning and rearing grounds, of the Columbia River Basin that have been adversely affected by the construction and operation of hydropower facilities. The Council last amended the program in December 1994. It is a comprehensive program that aims to improve the survival of all fish and wildlife populations in the Columbia Basin. As required by the Northwest Power Act, measures in our program are based on the best available scientific knowledge and were developed with broad public involvement. The program includes both immediate and longer-term measures designed to improve salmon survival at every stage of the life cycle. In general terms, these can be divided among the so-called "four Hs" of human-caused impacts: hydropower, habitat, hatcheries and harvest.

The Act imposed responsibilities on federal river, land and power agencies to act in a manner consistent with the Council's power plan and fish and wildlife program or to consider the plan and program in their decision-making "to the fullest extent practicable." The ability of federal agencies to meet their objectives under the Act is tied directly to their funding levels and budget priorities.

U.S. ARMY CORPS OF ENGINEERS

The Council continues to support the Corps' Columbia River Juvenile Fish Mitigation Program. The focus of the program is to reduce the mortality of juvenile salmon and steelhead as they migrate down the Snake and Columbia Rivers to the ocean from their spawning grounds. While significant sums of money have been appropriated for the program over the past decade, and many improvements have been made, much work still remains. The Corps' Fiscal Year 1997 budget proposal for the program is $107 million, and includes funding for several critical studies and activities that are crucial to recovering, rebuilding and maintaining the anadromous fish runs in the Columbia River Basin. The budget includes adequate funding for continued testing and installation of new or improved juvenile bypass and related transportation facilities at the mainstem dams -- Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams on the Snake River, and McNary, John Day, The Dalles, and Bonneville dams on the Columbia. The Council supports the Corps' full budget request of $107 million.

Juvenile Fish Bypass Systems

In 1987 the Council helped develop a consensus among private and public utility interests, Indian tribes, fish and wildlife interests, and the Bonneville Power Administration on the need for expedited completion of new and improved fish bypass facilities at all the mainstem dams. This regional consensus resulted in an original schedule for completing these facilities by 1994. Unfortunately, several unforeseen factors arose which made the original schedule impossible to keep. Escalating costs and unexpected, dramatic declines in the population of several of the basin's anadromous fish runs have contributed to a longer implementation schedule for the program. This has led to new demands on the Corps to develop and install facilities not envisioned initially such as extended length bypass screens, surface bypass facilities, installation of passive integrated transponder (PIT) tag detectors, and improvements in the projects to reduce dissolved gas levels when water is spilled at the projects to assist the migrating fish.

The Council believes making the Federal projects safer to both juvenile and adult migrants continues to be of the highest priority, and encourages the Subcommittee to continue funding the program at the highest possible level to ensure the planned facilities are in place at the earliest possible date.

Surface Bypass Facilities

The Council supports testing, and if beneficial, the development and installation of surface bypass facilities at the mainstem hydroelectric dams. These new systems direct juvenile fish over spillways and may help salmon pass the dams more successfully and avoid the pressure changes that occur when the salmon go through conventional bypass systems. Funds are included in the Fiscal Year 1997 budget to design, test, and develop surface collection and bypass systems at Lower Granite, Ice Harbor, The Dalles, John Day, and Bonneville dams. The Council concurs with moving forward at these projects, as proposed by the Corps, and believes that surface collection facilities may offer a more efficient solution to passage difficulties at the dams.

Dissolved Gas Abatement During Spill

The Council also supports the development of a full-scale program to ensure that spill is carefully monitored and its effects on dissolved gas levels and fish survival are evaluated fully. It is essential that dissolved gas abatement technologies, such as spillway flip lips, slotted spill gates and baffles, be installed expeditiously so that intentional and unintentional spill do not produce excessive dissolved gas levels. This also will help keep the gas levels within prevailing state limits. The Council is pleased that the Corps is budgeting significant resources for both gas abatement studies and installation of spillway flip lips at Ice Harbor and John Day dams in Fiscal Year 1997. The timely installation of gas abatement facilities and the implementation of a comprehensive, science-based monitoring program may help alleviate much of the controversy currently surrounding the spill program.

Passive Integrated Transponder (PIT) Tag Detectors

To help accelerate essential evaluations of fish survival in the Columbia River system, it is imperative that PIT tag detectors be installed as rapidly as possible at the John Day and Bonneville projects. The Council places the highest priority on the completion of these facilities. Fortunately, for the current fiscal year, the Committee appropriated funds for the initial design and construction of the John Day facility, and the Corps has requested additional funds for Fiscal Year 1997. The Corps originally expected the facility to be operational by March of 1997.

Unfortunately, on April 11, 1996, during a briefing by the Corps, the Council was informed of foundation problems encountered by the contractor at the John Day monitoring facility site. The Corps provided the Council with various options for dealing with this problem. After examining the alternatives, the Council decided to support the least-cost option which will require $3.2 million in additional funds during Fiscal Years 1997 and 1998, and will extend the completion date for construction of the facility to October 1997. Of the total $3.2 million in additional funds, $1.1 million will be required in Fiscal Year 1997 and the remaining $2.1 million will be required in Fiscal Year 1998. For Fiscal Year 1997, therefore, instead of the Corps' original estimate of $8.16 million for the John Day facility, the Council supports the expenditure of $9.26 million. Due to the facility's high priority, the Council requests that the Committee provide direction to the Corps to allocate the full amount to the John Day facility in Fiscal Year 1997.

BUREAU of RECLAMATION

The Council continues its support of the Umatilla Basin Project in Oregon. This is a water exchange project whereby water is pumped from the Columbia River to supply irrigation districts, which then leave water in the Umatilla River to help rebuild salmon populations. The Bureau has included $4.9 million in its Fiscal Year 1997 budget for continued construction of phase II of the project.

The Bureau is proposing to spend $4.475 million in Fiscal Year 1997 on the Yakima River Basin Water Enhancement Project. The Council also supports this project which will employ structural and nonstructural water conservation measures to increase the reliability of the irrigation supply and enhance streamflows in the Yakima River. In addition, tribal water supply facilities will be improved and will enhance tribal economic, fish, wildlife, and cultural programs.

In addition, the Council supports the Columbia and Snake River Salmon Recovery Project which the Bureau is proposing to fund at $15 million for Fiscal Year 1997. The majority of the funds will be used for water conservation and water acquisition (on a willing buyer-willing seller basis) projects in the Columbia and Snake River Basins. The water conservation measures will benefit fish survival primarily in the Lemhi, Yakima, John Day and Wallowa rivers. Funds are also included to pay for acquisition of water, in accordance with state water law, to benefit listed stocks in the Snake River Basin.

BONNEVILLE POWER ADMINISTRATION

The Bonneville Power Administration provides electric power (about half of the power consumed in the Pacific Northwest), transmission (about 80 percent of the region's high voltage capacity), and energy services throughout the Pacific Northwest, a 300,000 square mile service area. Bonneville markets the power produced at 30 Federal hydroelectric dams in the region which are operated by the Army Corps of Engineers and the Bureau of Reclamation, and acquires non-federal power and electric energy conservation resources to meet the needs of its customer utilities. Bonneville receives no annual appropriations from Congress, and funds the expense portions of its budget and repays the Federal investment in the Federal Columbia River Power System with revenues from electricity sales. During fiscal year 1997, Bonneville plans to pay to the Treasury in full its annual scheduled amortization payment, which is estimated to be $835 million.

Bonneville is the primary implementor of the Council's power plan and fish and wildlife program. The budget proposed by Bonneville for Fiscal Year 1997, comprised of both operating expenses, capital investments, and capital transfers, totals $3.623 billion. This represents less than a 1 percent increase over the current Fiscal Year 1996 budget. Due to its 1996 Rate Case which currently is in progress, all of Bonneville's budget estimates are tentative, and will not be finalized until the rate case is concluded late in the fiscal year. Bonneville expects the new electrical rates to be in effect on October 1, 1996.

Fish and Wildlife

Last fall, the Administration and Congress agreed on a fixed budget for Bonneville's fish and wildlife recovery efforts in the Columbia River Basin. Under the terms of that agreement, Bonneville will incur costs, on average, of $435 million per year for five years on fish and wildlife activities. These funds fall under a number of different categories, including direct expenditures on fish and wildlife projects, power purchases, reimbursements of appropriated funds to the Corps of Engineers and the Bureau of Reclamation, capital repayment, and foregone revenues. For Fiscal Year 1997, Bonneville estimates that its total fish and wildlife budget will be $419.7 million.

Under the agreement, the portion of the budget related to direct expenditures, reimbursements, and repayments is set at $252 million per year. The hydropower portion, however, will vary from year to year depending on winter precipitation. Based on historic water records, the value of lost hydropower in an average year will be about $183 million, bringing the total to $435 million. This is about 12 percent of its total budget of $3.6 billion.

The Council takes seriously Congress' concern that fish and wildlife funds be spent judiciously, and is working with Bonneville and the region 's fish and wildlife managers to ensure that the most worthy projects receive funding. The Council is taking an active role this year in assisting Bonneville in prioritizing its direct expenditures on fish and wildlife projects. These expenditures are expected to total more than $100 million during Fiscal Year 1997. Currently, state, federal and tribal fish and wildlife managers are scrutinizing recovery projects proposed for Bonneville funding. This prioritization will ensure that Bonneville's money is spent on projects that have the greatest potential value. The Council is initiating a public review and comment process on the list of projects, and hopes to have a final list completed and forwarded to Bonneville by July.

Energy Conservation

The Council's 1991 Northwest Power Plan called for immediate acquisition of all cost-effective efficiency improvements, and identified at least 1,500 average megawatts of efficiency gains to meet regional load growth over the next decade. Bonneville and its public utility customers' share of the goal was at least 660 megawatts, and they maintained strong performance in moving toward that objective.

Much has happened to the electricity market in the five years since the 1991 power plan was written, however. The increasingly competitive electricity market in the Pacific Northwest is leading to a situation where utilities are unlikely to be the primary vehicle for capturing all cost-effective conservation in the future. This is particularly true for Bonneville which, as a wholesale utility, is already fully exposed to competition. As a result, the region is initiating a fundamental review of how conservation can best be acquired. While the Council maintains its commitment to the acquisition of all cost-effective conservation in the region, and the mandate of the Northwest Power Act, it believes that the region must be creative in finding new ways to capture the benefits of conservation over time.

For this reason, last February the Council acknowledged to Randy Hardy, the Administrator of the Bonneville Power Administration, that it may be difficult for Bonneville to fulfill some if its recent conservation commitments. Specifically, the Council does not believe it is possible for Bonneville to fulfill its commitment to provide additional support to "backstop" utility efforts to meet conservation goals. We requested, however, that Bonneville work with the Council, members of the steering committee for the governors' Comprehensive Review of the Northwest Energy System, and others in the region to devise new conservation acquisition strategies that will result in real success in the new competitive environment.

Mr. Chairman, thank you for this opportunity to share our concerns with you. We sincerely appreciate the thorough consideration that this subcommittee has given to the needs of the Pacific Northwest.

PREPARED STATEMENT OF MIKE THORNE, EXECUTIVE DIRECTOR, PORT OF PORTLAND

Mr. Chairman and members of the subcommittee:

My name is Mike Thorne and I am Executive Director of the Port of Portland in Portland, Oregon. I offer this testimony of behalf of the seven lower Columbia River ports in Oregon and Washington that are sponsoring the Columbia River channel improvement project.

Throughout the years, this subcommittee has shown strong support for our efforts to improve the Columbia River transportation system. Please accept my very sincere appreciation for that advocacy.

The seven ports sponsoring the Columbia River Navigation Channel Deepening Project include, in Oregon, the Port of Portland, Port of Astoria, and Port of St. Helens; and in Washington, the Port of Kalama, Port of Longview, Port of Vancouver, and Port of Woodland. In 1995, more than 2,146 ocean-going ships carried 38 million tons of cargo valued at an estimated $14 billion through the private and public facilities located at these ports. Over the past 20 years, these cargo volumes have more than doubled on the lower Columbia River.

Request Summary

- My first request is for support for full funding of the Corps of Engineers' capability for the feasibility study of the channel deepening project. This appropriation will continue the federal government's share of the feasibility study to investigate deepening the channel from 40 feet to 43 feet. Local sponsors are matching the federal amount.

- My second point is the need to provide more support for the Corps of Engineers' responsibilities in the area of operation and maintenance dredging. Forecasts show that U.S. waterborne trade will rise from 875 million tons in 1990 to 1.5 billion tons by the year 2010. How U.S. ports can serve this volume will be determined, in part, by our own port planning and financing. It will be determined, too, in large measure by how much emphasis is placed on operation and maintenance funding for the Corps of Engineers. I know this panel supports that concept, but I worry that others in Congress and around the country don't always see the connection between our navigation channels and our competitiveness in world markets. As major shipping lines demand more in the way of service, U.S. ports will stand to lose ground in our ability to compete with foreign ports if our capital investments drop in harbors and navigation. The ultimate loser in this equation is not port management, but U.S. agriculture and manufacturers who will see their ambitions in world markets decline as cost-effective access to waterborne trade routes is lost.

- My third request is for this committee's continued strong support for the Corps of Engineers hopper dredge fleet. The critical value provided by these vessels in the Northwest is simple. Safety in navigation is due in large measure to the responsiveness of the Corps fleet to rapid shoaling in our rivers and harbors. In addition, they assure competitiveness and cost savings by providing a check against the limited number of private bids that often are received in our part of the country.

- Finally, I want to say a word about the recent flooding in my home state. The Portland District of the Corps deserves our deep thanks for a job well done. Now we have to turn to the flood's aftermath. Shoals normally are created during floods, and they are likely to hamper navigation in the Columbia River. The Corps is working hard to survey any changes in the channel, particularly where shoaling is expected. I know they will strive to ensure the shipping channel is maintained at 40 feet for commercial traffic. My message to you today is that the Corps will need special flood funding in the areas of operations and maintenance, flood control, and coastal emergencies. I strongly encourage the subcommittee to provide specific assistance in these areas as requested by the Corps of Engineers for the supplemental appropriations bill you are considering.

You will also hear today from others in our region about their transportation needs and interests. In the Pacific Northwest, we are blessed with a growing and highly efficient transportation network that serves the needs of river ports, coastal ports, and the many shippers who are our customers.

Lower Columbia River Channel Deepening: Feasibility Study Funding

Let me expand on each request, beginning with the study of the channel project for the lower Columbia River. This project is the top marine priority for our region. Thanks to the help of this subcommittee, the reconnaissance phase of this investigation is complete, and we are one-third of the way through the feasibility study. Because of the delay in the budget this year, we do not know the amount the Corps will request for its full funding of the Fiscal Year 1997 federal share of the study. Nonetheless, I believe it is critical that the subcommittee provide the amount to be requested so that the feasibility study can continue on schedule.

At present, the feasibility study is scheduled to be completed in November of 1999. I must confess I wish we could find ways to speed up that process, but reality suggests to me that we will have to work hard just to keep it on schedule. The ports in the lower Columbia River already are seeing larger and deeper draft vessels call at our docks all the time. In fact, those large vessels that need a deeper channel are here in the Columbia River today. At present, the new, larger container ships calling in Portland and other Columbia River ports often must leave only partially loaded. This so called "light loading" means export cargo is left on the dock, and vessels are not used to maximum efficiency. Each foot of draft equates to 2,000 tons of cargo, which translates into approximately $324,000 in added wheat cargo value or $2.5 million in added container cargo value. That is the cargo left sitting on the dock when a ship leaves less than fully loaded. That is also lost business for the shipping line and U.S. manufacturers.

Here is what is at stake today. The Columbia River is the second largest export gateway on the West Coast. More than 90 percent of the region's goods move by way of the Columbia River to overseas customers. For the nation's wheat producers, the Columbia river is the largest export gateway in the U.S., handling approximately one-third of the country's production. From Montana, as one example, three-quarters of the wheat crop from that state reaches export markets by way of the Columbia River. Corn from the Dakotas and Nebraska rides the Columbia to the Pacific Rim. These are but a few examples.

In the container market, Portland has been one of the fastest growing container ports on the West Coast in recent years, although growth is leveling off. Given our nation's continuing trade deficit, this net contribution of exports from my region is a very positive factor in efforts to balance our trade deficit.

We expect our national trade significance to continue. Today, the Columbia River system can count many strengths. Our export volumes, coupled with effective steamship service to key markets, rank as critical assets. Also high on the list are our transportation and intermodal connections between our region and other parts of the nation. Finally, this transportation system and our docks and harbors are relatively uncongested, which means we can provide timely service in an age when just-in-time manufacturing is vital to our economic system. Nonetheless, the major weakness in our picture is the current 40-foot depth of our deep-draft navigation channel.

That is why building and maintaining a navigation channel that can handle today's larger vessels and those on order for the future is such a critical need. Nearly a decade ago, we began planning this navigation improvement with increasing vessel size in mind. Before we were able to bring the project on-line, reality already has caught up with us. Larger and larger vessels are calling at sponsor ports today. Their presence reminds us regularly of the critical need for this project to move ahead.

Graphic Evidence of the Threat

To make this point, one of our steamship carriers at Portland recently announced its intention to shift its vessel calls to Vancouver, B.C., in Canada--a competing foreign port, not another U.S. harbor. Based on its new larger class of vessels with deeper drafts, Hanjin of Korea announced the switch several months ago. A major reason cited was the concern over the depth of the Columbia River channel to handle their vessels. I must say that this is a sign of things to come if the present 40-foot channel is not deepened within the next several years.

What is not so evident in Hanjin's decision to switch its fleet to Vancouver, B.C., is the long-term impact of such a decision. The real risk is that such a change could begin to substitute Canadian products for products manufactured in the U.S. In the short term, one should not read too much into this specific departure because carriers often change their routes. What is important to note, if this trend were to become a long-term change in shipping patterns, is the threat to manufacturers and shippers who rely on the current Columbia River system. In short, the importance to move ahead with the channel project comes into very clear focus in the Hanjin departure. Here is stark evidence of why we need to move quickly to improve the Columbia River channel.

Benefits of a Well-Maintained, Integrated System: Operations and Maintenance

Our ports have a history of a 100-year partnership with the federal government in operating and maintaining the Columbia River's navigation system. In 1890, the Portland District of the Corps of Engineers completed a study defining a 25-foot-deep channel from Astoria to the Portland/Vancouver area. A year later in 1891, the Oregon legislature created the Port of Portland for the sole purpose of dredging this 25-foot channel. Completion of the project came in 1893. Over the years, this federal/local partnership has seen the successful authorization and construction of two more channel improvements:

deepening to 35 feet, completed in 1950; and construction of the existing 40-foot channel, dedicated in 1973.

The main Columbia River navigation channel is one part of a total system. While the main channel serves as the gateway to accommodate large ocean-going vessels, we should never forget the importance of the lock and dam system that opens up the river to its inland waterway stretching to Idaho. That this system exists, and is being improved today, is testament to the wisdom and foresight of this subcommittee and Congress.

Our challenge today comes in the face of the transition within the federal government, particularly with the Corps of Engineers. Faced with a wide range of fiscal priorities and restraints, the Corps of Engineers is being pulled in a number of directions. The hydro system has demands, flood control is a pressing need, recreation and environmental demands are great. The Corps finds it hard to prioritize these demands. Congress needs to move expeditiously to be sure that the Civil Works Department within the Corps of Engineers has adequate resources to assure the upkeep and maintenance of the harbor and navigation system.

Our maintenance of the nation's navigation system directly affects our access to outside markets. If we can't keep our waterways functioning at all times at project depth, our manufacturers and producers will suffer serious economic impacts. Ports understand these connections, and this subcommittee understands these connections. But the fact is, not everybody around the country understands how a productive gateway to trade helps us compete in the global economy.

Advance Maintenance Encouraged

I encourage this subcommittee to give the Corps of Engineers the means, both fiscal and policy, to take a more proactive approach in its advance maintenance program. Rather than allowing channels to shoal to less than project depth before beginning remedial dredging, let's encourage the Corps to be more proactive A clear statement from Congress that the Corps' responsibility is to assure project depth in authorized channels at all times would be a great step forward. Unless our waterway system is equipped at all times to meet the demands of the 21st century, we are not going to keep up our record of improved competitiveness in the world marketplace.

Strong growth in U.S. foreign trade in recent years, coupled with innovations by shipping lines, has produced an even more competitive environment in the maritime industry. U.S. ports operate in a complex legal framework that has placed considerable financial pressure on port operations and expansion. Our overseas competitors do not face these same restraints. I am not here today to argue that we undo the proliferation of environmental rules and regulations facing U.S. ports. What I am here to say, as forcefully as I can, is that Congress needs to pay even more attention to the Corps of Engineers operation and maintenance budget in the years ahead.

To continue the growth of exports and U.S. productivity we have seen in recent years, Congress will need to encourage intelligent investment and management in the existing harbor and channel facilities that serve our nation's shippers and manufacturers. Certainly, Congress should also take care to ensure that any wasteful missions for the Corps of Engineers are eliminated. It would be ironic, however, if the Corps of Engineers were to lose sight of its navigation mission just at the time U.S. manufacturers are reaching their stride in international competition.

Ports will move aggressively to meet the demands of their shipper customers in our own planning and financing of port facilities, such as docks, wharves, and terminals. Our success in international competition also will be determined in large measure by the role played by the Corps of Engineers.

I know this subcommittee supports that Corps' mission. Yet the challenge will be to make sure that the process of careful budgetary examination does not dismantle existing programs that deliver great economic good. I encourage the members of this subcommittee to use their skills and courage to help keep the navigation focus of the Corps of Engineers at a high level. Now, more than ever, is a time to deliver an effective navigation system for our nation's manufacturers.

Hopper Dredges; Critical to Safe Navigation

All of us who stand to benefit from deepening the Columbia River channel also owe a critical debt to the Corps of Engineers hopper dredge fleet. This group of four specialized dredges provides an essential margin of safety in navigation for the nation's rivers and channels. Threats to navigation come in the form of shoaling and sand waves in the Columbia River as well as other navigation systems around the country. If ignored, these difficulties curtail or stop navigation, or worse, create dangerous hazards to vessels. While these problems do not always require a large amount of work, they do require very quick response. If the Corps dredges serving my region were ever removed, our ability to respond promptly and effectively to these challenges or safety hazards would be greatly diminished. The result is delayed cargo and lost export opportunities or much worse--all of which hurts shippers.

Cost also is an important consideration in the continuation of the Corps hopper dredge fleet. I am a strong supporter of the private sector. Yet I must confess in this instance, the presence of the government fleet helps keep bids for dredging work competitive and lower in cost. Private dredging capacity, particularly in the Pacific Northwest, is very limited. The result has been a less than satisfactory competitive bidding situation. In this case, the Corps fleet does provide a competitive damper on prices. The overall result is that the Corps operations and maintenance budget can be stretched farther.

Complicating this policy is the Congressional debate that comes up each year over how to divide work between the Corps fleet and the private sector dredges. On behalf of our port group, let me assure you we are interested in the least costly option for dredging. Yet, I must say, based on the Corps' own experience in the Pacific Northwest with the general lack of competition for bids, having a robust and fully active Corps fleet is very important in this equation. My region firmly believes that Congress should refrain from any further limitations on the Corps hopper dredge fleet in appropriation bills or any other legislation.

Conclusion

Again, Mr. Chairman, the lower Columbia River ports point to our navigation channel as a remarkable success story as a partnership between federal, state, and local governments and our private sector customers. Ours is a story of regional and national trade significance that is at a critical crossroads in economic and strategic importance. As the world's fleet increasingly shifts to larger vessels, ship owners will continue to ask me and my colleagues harder questions about when the Columbia River will eventually be deepened.

Now is the time to make a clear statement about the importance of the Columbia River system, on several different fronts. Your subcommittee can do so by signaling its support for a continuation of the feasibility study, for a continuing high priority for operations and maintenance dredging, and for a continuing strong presence of the Corps hopper dredge fleet.

This subcommittee has a tremendous opportunity to help keep our trade productivity on a prosperous pathway. To do so, however, you must help keep the Corps of Engineers on its toes. I look forward to working with you on this challenge in the years ahead.

Thank you.

PREPARED STATEMENT OF VERNE E. PASSENGER, PORT COMMISSIONER, PORT OF SIUSLAW

Mr. Chairman:

My name is Verne Passenger and I am a port commissioner for the Port of Siuslaw, Oregon. I appreciate this opportunity to submit this testimony about the proposed fiscal year 1997 budget for the U.S. Army Corps of Engineers. My testimony today discusses several aspects of Corps' activity, and it is our intention to give full support for the Corps of Engineers Operation & Maintenance (O&M) budget.

PORT OF SIUSLAW CREATES JOBS THROUGH ECONOMIC DEVELOPMENT

The Port of Siuslaw's river transportation system serves as a vital river highway which is centrally located here on the Oregon coast. The port is working to diversify its economic development projects and add new businesses at each opportunity. Facilitating trade on and near this federal river highway system is an essential component of our economic well-being.

The Port of Siuslaw's economic diversification projects are presently funded by federal and Oregon State Marine Board funds. Our project at this time is half completed and consists of a 200 space parking lot and the infrastructure for 10 new business sites. The Port of Siuslaw's boardwalk should be funded and completed in 1996. The total cost of this project (state and federal funds) is approximately $1,100,000. Once completed, this project will diversify its commerce and trade for the people of this port district and will create hundreds of new jobs. The Corps' budget is important to this project because visitors are attracted to a working waterfront. In order to have a working waterfront, you must have a navigable waterway.

The Port of Siuslaw wishes to express our support for appropriations for the following:

1) The continuing authorities programs and O&M budget.

2) We encourage the committee to maintain the federal dredges *YAQUINA*, *ESSAYONS*, and *SANDWICK* operated by the U.S. Army Corps of Engineers.

3) We support the Corps' plan to increase effectiveness and reduce costs. However, we do not support proposals for future years that would drastically reduce Corps programs and O&M budgets. The Corps supports the entities that turn the nation's rivers and harbors into economic and recreational benefits.

4) We encourage the committee to maintain dredging for shallow draft ports irregardless of the tonnage over the river bars. The importance of safe and navigable waterways is not always measured by tonnage.

CONCLUSION

Balancing spending priorities in a time of shrinking resources is a difficult task. I urge you to continue to not only fund the deep draft ports, but the shallow draft ports as well.

In closing, I want to thank Chairman Myers and all subcommittee members for their attention and understanding of the various issues I have discussed here today. Your decisions will heavily impact the people of this port district.

Thank you for the opportunity to address this committee.

PREPARED STATEMENT OF DAN JAMES, PACIFIC NORTHWEST WATERWAYS ASSOCIATION, VANCOUVER, WA

Summary of Appropriations Request

The Pacific Northwest Waterways Association represents ports, tug and barge lines, river shippers, electric utilities, manufacturers, and agricultural and forest products producers along the Columbia/Snake River System and throughout the Pacific Northwest. Our members wish to thank the Committee for its support of Pacific Northwest transportation, hydropower and salmon enhancement programs in recent years.

We wish to express our support for appropriations for the following:

- The Continuing Authorities Programs and ongoing construction and operations and maintenance (O&M) of the federally authorized navigation channels in the Columbia/Snake River System, the Washington and Oregon Coastal ports, and Puget Sound;
- Full funding for the Coos Bay, Oregon channel deepening project and the feasibility study of the lower Columbia River channel deepening project;
- Full funding for the restoration of the Newport Breakwater at Newport, Oregon;
- Full operations and maintenance of the region's hydropower system;
- Full funding for construction on the Bonneville Dam powerhouses;
- Continued funding of the U.S. Department of Energy cleanup at Hanford;
- Selected salmon recovery actions such as improved and enhanced smolt transportation, surface collection and other smolt by-pass facilities, habitat restoration and protection, and predator control; and

There are several other issues that we wish to raise with the Committee:

- We encourage the Committee to maintain the four federal hopper dredges operated by the U S Army Corps of Engineers (Corps);
- We support the Corps' plans to increase effectiveness and reduce costs However, we do not support proposals for future years that would drastically reduce Corps programs and O&M budgets The Corps supports the entities that turn the nation's rivers and harbors into economic and recreational benefits.
- We are opposed to proposals to shift Mitchell Act hatchery funding into the Bonneville Power Administration budget.

- We encourage the Committee to direct the Corps to remove the John Day drawdown and continued study of the Snake River drawdown from the SOR preferred alternative, and to deny future requests for funding of drawdowns or drawdown studies; and
- We believe that the federal government should participate in the funding of salmon recovery measures under the Endangered Species Act and the Northwest Power Act. This would provide both administrative and Congressional oversight that would result in recovery plans that have greater biological basis and are more cost-effective than the current NMFS draft

The Pacific Northwest Waterways Association appreciates the opportunity to present its views on appropriations issues to the Committee. PNWA membership includes 140 organizations and individuals in Oregon, Washington, and Idaho. PNWA represents:

- Public port authorities on the Pacific Coast, Puget Sound, and Columbia/Snake River System.
- Public utility districts, investor-owned utilities, and direct service industries,
- Irrigation districts, grain growers and upriver and export elevator companies;
- Major manufacturers in the region;
- Forest products industry manufacturers and shippers; and
- Tug and barge operators, steamship operators, consulting engineers, and others involved in economic development throughout the Pacific Northwest.

PNWA has a long history of working with the Committee and the U S. Army Corps of Engineers on projects of regional and national importance, sharing the challenge to maintain and develop our transportation infrastructure Our members wish to thank the Committee for its support of Pacific Northwest transportation, hydropower and salmon enhancement programs and projects it has funded in previous years.

MINIMUM DREDGE FLEET

We encourage the Committee to maintain the four federal hopper dredges operated by the Corps The coastal and river ports of the Pacific Northwest rely heavily on the regional placement, responsiveness and capacity of these dredges To remain competitive in world markets, Northwest ports and their customers rely on hopper dredges for low-cost and timely completion of dredging requirements.

The federal hopper dredges may soon play an important role in our region's recovery from recent flooding The Corps is now evaluating the impact of the floods on the federal navigation channels There is anecdotal evidence that the floods may increase the need for dredging in the Columbia by as much as one-third this year The federal hopper dredges have been called upon in other regions when floods have required increased emergency and operations and maintenance dredging. Even without floods, emergency dredging is often needed to restore the federal navigation channel to allow commerce to pass. Shoaling can occur very rapidly, and it has a potentially dangerous impact on export shipping and the sport and commercial fishing fleet. Shippers and ports cannot afford to wait several weeks for dredging while private contractors are engaged and move their dredges to the site of the work Trade commitments and vessel safety are at risk.

It is unclear if the private dredge industry has sufficient medium and large class hopper dredge capacity to allow ships to take full advantage of the authorized channels, and to respond quickly to the non-routine emergency dredging needs of small and medium sized ports on the Oregon and Washington coasts. We are also concerned that the low number of private industry bids for work in our region could force dredging costs higher were it not for the availability of the federal dredges. We believe that the presence of the federal dredges keeps bids for dredging work competitive and lower in cost.

CONTINUING AUTHORITIES

We wish to thank the Committee for its support of the Corps' Continuing Authorities Programs in the 1996 conference report We agree that these programs are of great value to many small communities throughout the Pacific Northwest and the nation.

OPERATIONS AND MAINTENANCE FOR NAVIGATION

We ask the Committee for full funding for ongoing operations and maintenance (O&M) of the federally authorized navigation channels in the Columbia/Snake river system, the Washington and Oregon Coasts and the Puget Sound. Maximizing O&M is a cost-efficient means of fully utilizing the federal government's investment in channel operations. We would also like to make the Committee aware that resources in the Corps' North Pacific Division are being stretched due to their response to recent flooding in the Pacific Northwest. We look forward to working with the Committee to assist the Corps in their efforts.

We urge the Committee to resist any proposals which would drastically reduce Corps funding for basic services, including the maintenance of both inland waterways and shallow and deep draft ports and harbors. Over 20 percent of the employment in the Northwest states is directly related to international trade. These navigation projects are among the few federal programs that are analyzed to ensure that economic benefits exceed the costs. We wish that all federal programs could meet this standard. We also encourage the Committee to continue to reject proposals to eliminate flood control and beach replenishment. These proposals would have had a profound effect on Corps beneficiaries throughout the country.

DEEP DRAFT CHANNEL DEEPENINGS

The Columbia River deep draft channel is the lifeblood of the Columbia/Snake River System. To protect future growth and development of the River System, we ask the Committee to continue to fund the federal share of the feasibility study of the lower Columbia River Channel Deepening Project. This funding would pay for the federal government's share of the study to investigate improving the existing 40-foot navigation channel by increasing the channel depth to 43 feet.

We wish to thank the Committee for authorizing the Coos Bay, Oregon channel deepening project last year. We encourage the Committee to appropriate the remaining federal share this year to fulfill the commitment made upon successful completion of the study phase and last year's authorization. We have asked the Corps to reprogram funds to allow construction to begin on May 1. This will deepen the existing channel from 45 to 47 feet at the entrance and from 35 to 37 feet in the 15-mile inner channel.

NEWPORT BREAKWATER

We encourage the Committee to fund the restoration of the Newport, Oregon Breakwater, which needs major extension and repair. Carrying out this project will mean better protection for those vessels using the inner harbor, and will allow for continued growth of this important West Coast fishing port.

BONNEVILLE DAM POWERHOUSES

We encourage the Committee to fund the remainder of phase I and ongoing construction for phase II of the major rehabilitation of the Bonneville Dam powerhouses.

OPERATIONS AND MAINTENANCE OF THE REGION'S HYDROPOWER SYSTEM

We would like to thank the Committee for its decision last year to impose an annual cap on salmon recovery costs. We are hopeful that the Bonneville cost-cap, even though it has some flexibility, will force a prioritization of recovery measures, and implementation of cost effective measures. The cost cap means that the region and the country can no longer afford to add more and more requirements without scientific justification. In that vein, we encourage the Committee to direct the Corps to remove the John Day drawdown and continued study of the Snake River drawdown from the System Operation Review preferred alternative, and to deny future requests for funding of drawdowns or drawdown studies. We encourage you to remain skeptical of drawdown proposals.

As the Committee is aware, on December 4 the National Research Council (NRC) released its study on salmon recovery efforts. The NRC Committee concluded that the transportation of smolts is the "most biologically and economically effective way to help them get past the dams." They said drawdown, except to river grade, was not proven to benefit the fish. "Dam removal and drawdown to river grade would help, but they are too costly." The NRC Committee project director indicated during briefings that "focusing on the hydro system alone will not solve the problem. The Columbia River is only one piece of the puzzle."

Our reading of the Bevan team recommendations in the NRC report indicates that they continue to discredit drawdowns. This is true of the reservoir survival study results in the Williams-Skalski-Iwomoto study over the last two years that show reservoir mortality is negligible. We see no value in continuing to spend time and money on more drawdown analysis or on drawdown implementation, for example, in the Snake River Environmental Impact Statement that is now underway Flow augmentation may aid survival, but there is no scientific justification for the massive volumes that were called for last year Likewise, judicious application of spill may help in some circumstances, but large volumes of spill increase nitrogen supersaturation to lethal levels.

SALMON RECOVERY DECISION AUTHORITY AND FUNDING

While we support efforts to improve the processes governing the region's fish and wildlife programs, we are concerned that some proposals will decrease, not increase accountability One reason for our concern is that some discussions about "regional control" only seem to involve the federal, state and tribal fish agencies who have a vested interest in higher, not lower, fish and wildlife expenditures We believe that those who are paying for these programs are not as close to the decision-making process as they should be

We also believe it is appropriate to consider a federal cost share for ESA recovery programs By that, we mean federally appropriated funds This makes sense to us for two reasons The first is that the region is already paying more than any other region in the world for endangered species protection

Secondly, there are no checks and balances on the federal agencies or the Power Planning Council They simply demand more each year Without biological monitoring and without scientific justification, the region's costs have increased at an explosive rate. One way to ensure that the federal agencies employ biologically sound and cost-effective measures is to make them responsible for a significant portion of the cost Federal government participation in paying for recovery measures would bring far greater accountability to the agencies. The benefits would increase and the costs would go down The Administration and Congress would have a far greater opportunity to make sure that the agencies provide maximum benefit at the lowest possible cost

We encourage providing the region with significant decision making authority while including a mechanism for federal cost share

MITCHELL ACT HATCHERIES

Funding for these hatchery programs were exhausted this year, prompting the early release of millions of smolts from Mitchell Act hatcheries We encourage the Committee to correct this problem this year by providing adequate funding for these programs In past years the Administration has proposed a shift in Mitchell Act hatchery funding into the Bonneville Power Administration budget. We oppose this As with other measures, to ensure control and oversight, the hatcheries should continue to be funded by the federal government. We also believe that reinstatement of Mitchell Act funding should be contingent upon the marking of all hatchery fish

HANFORD CLEANUP

We ask the Committee to continue to adequately fund the Department of Energy cleanup of 45 years of accumulated defense waste currently stored at the Hanford site We recognize that defense waste cleanup is a long-term project that will be most cost effective and most rigorously pursued if Hanford is a viable, operating site Therefore, we strongly urge the Committee to support a complete, ongoing Hanford scientifically and technologically based research and operations program in order to ensure long-term funding for waste cleanup.

CONCLUSION

On behalf of 140 members from throughout the Pacific Northwest, we thank the Committee for giving us this opportunity to review a number of issues important to the environmental and economic prosperity of our region.

PREPARED STATEMENT OF BYRON HANKE, EXECUTIVE DIRECTOR, PORT OF VANCOUVER

Mr. Chairman and members of the committee:

I am Byron Hanke, Executive Director of the Port of Vancouver in Vancouver, Washington. As background, the Port of Vancouver handles grain, other bulk and break bulk cargoes. My port is part of the group of seven lower Columbia River ports in Oregon and Washington that are sponsoring the Columbia River channel improvement project.

This subcommittee has shown strong support for improvements to the Columbia River transportation system over the years. Let me assure you of our sincere appreciation for that strong support. We are working hard to continue to meet the requirements of our customers and our economic responsibilities to the region and the nation.

More than 2,100 deep-draft, ocean-going ships carried 38 million tons of cargo valued at an estimated $14 billion through the ports on the Lower Columbia River last year. Cargo volumes have more than doubled on the lower Columbia in the past 20 years.

Channel Deepening: Top Marine Priority for Region

In an effort to keep pace with this new shipping size and technology, the lower Columbia River ports agreed nearly two years ago to pay 50 percent of the cost of the feasibility study to review deepening our navigation channel. We are responding to the rapid changes in the marketplace, changes that mean many of the vessels calling in the Columbia are nearly twice as large as they were 20 years ago.

These vessels, at nearly 1,000 feet in length and 41-42 feet in draft, strain the current 40-foot authorized channel, which was dedicated more than 20 years ago in 1973. Here is what is at stake: today the Columbia system is the:

- Second largest export gateway on West Coast
- Largest wheat export gateway in the U.S.
- 12th largest port system in the country (based on tonnage)
- 16th largest container port

Once the Corps completes its feasibility study, we hope to move quickly to authorization and construction of the improved channel. You can be sure of our commitment, since local sponsors are expecting to provide approximately 35 percent of the cost for the construction project.

Local sponsors began planning this navigation improvement with increasing vessel size in mind nearly 10 years ago. Like many other U.S. ports, we have found the markets has changed more rapidly than we can respond. Larger and larger vessels are calling at sponsor ports today. Their presence reminds us regularly of the critical need for this project to move ahead. During the Reconnaissance Study, the Corps found very positive cost-benefit ratio's. These estimates, will be fine-tuned as part of the feasibility study, but we expect this positive national transportation impact to remain very evident.

Impacts from the project will be felt well beyond our regional boundaries. Cargo from around the country makes its way to the Pacific Rim by way of the Columbia River system. Because the Columbia Ports are net export ports, we are positive contributors to our nation's trade balance. Further, we have a system of inland waterway, rail and highway links that will serve our customers around the country for many years to come. We view the channel deepening as much more than a port project. It is a response to the needs of our shipper customers who must have cost-effective and timely access to overseas markets in the years ahead.

As the second largest export gateway on the West Coast, the Columbia River systems serves customers from many states. Let me cite just a few examples. Columbia River ports are the largest export gateway for the nation's wheat crop. We handled one third of the country's production, moving three-quarters of Montana's wheat crop, as one instance. Mid-west growers from the Dakotas and Nebraska send much of their corn to Pacific Rim markets by way of the Columbia. Our extensive rail, highway and inland waterway connections mean Columbia River ports such as Vancouver will continue to play an important trade role, particularly as Pacific Rim markets continue to develop.

Channel Maintenance Essential:

Effective channels for trade also must be maintained as authorized on a regular basis. This is no small problem today and it is made more difficult by the changes in the federal government, particularly with the Corps of Engineers. Faced with new financial restraints, the Corps of Engineers, in my judgment, is being much less aggressive in its maintenance of the nation's navigation system. As this year's Energy and Water Development Appropriation is being considered, I strongly encourage Congress to press the Corps to be more aggressive in assuring of authorized depths at all times in federal channels.

When we cannot assure authorized project depths, port customers will suffer serious economic impacts. I know this subcommittee understands the importance of channel maintenance, but the fact is the Corps needs to be encouraged to do a better job in this area.

I urge this subcommittee to insure that the Corps has the means to take a more proactive approach in its advance maintenance program. Too often, our channel surveys show depths at less than project depth before dredging occurs. Ninety-five percent of all U.S. international trade moves by ship and these vessels require deep water channels with proper maintenance to assure that our manufacturers and businesses are competitive in world markets.

I can assure you that our objective is to work hard to meet the needs of our shipper and steam ship line customers. Yet, our success in international competition also will be determined in large measure by the role played by the Corps of Engineers in its operations and maintenance role.

Channel Turns: Technical Solution Sought: Finally, Mr. Chairman, I want to call your attention to some technical changes we are suggesting in the lower river channel. After a recent mishap in the lower Columbia River, ports and the Columbia River Pilots are asking the Corps to consider changes to two turns in the channel. We are requesting that the Corps use the facilities and expertise of the Waterways Experiment Station (WES) to simulate technical corrections, but money will likely be needed for the review. We believe the urgency of this situation demands an early correction of the navigation problem. Thus, the lower Columbia River ports are asking the subcommittee to support an appropriation for the special study of technical modifications to these turns.

Conclusion:

Mr. Chairman, our region, assisted by our navigation channel, is ready to continue its growing role as a linchpin in the nation's trade with the Pacific Rim. Yet, as the world's shipping fleet turns to larger, deeper draft vessels, we must be able to respond with an enhanced channel. Our studies have consistently shown the economic benefits of a deeper channel, outweighing the relatively modest cost of this added investment.

Your subcommittee can assist tremendously by its support for a continuation of the feasibility study, for a continuing high priority for operations and maintenance dredging, and for work on essential turn improvements in the lower river.

Thank you for your attention to my views.

PREPARED STATEMENT OF HENRY M. CAGEY, CHAIRMAN, LUMMI INDIAN NATION

Thank you for the opportunity to present to you our need for continued assistance to complete the Reconstruction of Lummi Shore Road and our new requests for funding of future Capital projects through the Bureau of Reclamation.

1. **U.S. ARMY CORPS OF ENGINEERS REQUEST FOR FUNDING TO COMPLETE THE PLANS AND SPECIFICATIONS AND CONSTRUCTION OF LUMMI SHORE ROAD**

   A. ***$3.24 million Appropriation***
   Appropriate a total to $3.24 million for FY 1997 to complete plans and specifications and initiate construction of the Project;

   B. ***Waiver Federal Costs Cap***
   Waive the federal contribution cap for Section 103 Project which is $2 million dollars for this project; and,

   C. ***Waive Cash Portion of Local Matching***
   Waive the cash portion of the local matching requirement that would otherwise be paid by the Lummi Nation and allow the Lummi Nation portion of the matching requirement to be in-kind" only. A local match equivalent to 35% of the total Project Costs, a portion of which must be paid as cash.

2. BUREAU OF RECLAMATION CAPITOL PROJECTS FOR THE LUMMI NATION WATER SYSTEM INFRASTRUCTURE PROJECT

A.	**Water system connection (Intertie) Smokehouse Road to West Shore Road and Pressure Tanks Modifications**	**$ 37,000**
B.	**Water Storage Tank as Chief Martin and Cagey Roads**	**$490,000**
	Total Request	**$527,000**

LUMMI SHORE ROAD RECONSTRUCTION PROJECT

The most important project for the Lummi Indian Nation is the completion of the Lummi Shore Road Reconstruction Project which is an emergency situation affecting a major section of utility and road infrastructure serving the Lummi Indian Nation Reservation in Washington State. The erosion of Lummi Shore Road effectively cuts-off direct access to over 50% of the Reservation land base. When Lummi Nation first testified before you two (2) years ago requesting funding to enable the U.S. Army Corps of Engineers' Section 103 Project to begin the Section 103 Project which is needed to support the reconstruction of 4.7 miles of shoreline roadway and its utility corridor, we left with the understanding that Corps funding would be available to support the estimated total cost of $3.5 million. We were devastated to learn in December of 1995 that the Corps did not have the construction funding needed to complete the Section 103 Project.

LUMMI NATION TRIBAL REQUEST

** Appropriate a total of $3.24 million for FY 1997 to complete plans and specifications and initiate construction of the Project (or the balance of the total $3.5 million needed to complete the project subtracting Corps expenditures through FY 1996, estimated to be $260,000).*
Based on agreement with the Lummi Nation and its Project Partners, Whatcom County, B.I.A. and Washington State Department of Transportation, the Corps has initiated and funded on a cost sharing basis the feasibility study of the proposed Section 103 Project. The Corps costs to complete this study are a part of the overall project costs. The remaining $3,240,000. is needed to complete plans, specification and actual construction of Lummi Shore Road.

** Waive the federal contribution cap for Section 103 Project which is $2 million dollars for this project.*
All Lummi Nation partners in the LSR Project acknowledge that the estimated cost of the Section 103 Project will be over the $2 million federal costs cap. None of the participants is capable or prepared to fully assume project costs over $2 million. Therefore waiver of this cap and funding in excess of the $2 million cap is requested.

** Waive the cash portion of the local matching requirement that would otherwise be paid by the Lummi Nation and allow the Lummi Nation portion of the matching requirement to be in-kind" only. A local match equivalent to 35% of the total Project costs, a portion of which must be paid as cash.*

The continuing deterioration of Lummi Shore Road is a direct result of the failure of multiple jurisdictions to effectively address the needs of Lummi Nation members to access their own lands and access to a transportation system that supports personal, services and commercial transportation needs. Lummi Nation did not have roads maintenance funding, or responsibility and fail to properly exercise it. Therefore it should not now shoulder the financial burdens associated with fixing the problem.

1. Current Condition of Lummi Shore Road

An emergency situation exists over the project limits. Erosional forces continue to attack the shoreline eating away sections of roadway and threatening water and sewer lines. The road has been closed since 1991 and is restricted to one-way travel at nine (9) different locations. On January 16,1996, a new slide occurred undermining another section of roadway. Others slides are likely as numerous areas show signs of slumping as a result of 1996 Winter storm season which is still not completed. According to a 1992 Traffic Count performed by Whatcom County over 1,700 vehicles still use Lummi Shore Road on a daily basis, even though the road was closed at the time. Lummi Shore Road provides a continuing safety problem for all residents and service providers who are forced to continue to use this road.

2. Brief History of Lummi Shore Road

Lummi Shore Road was constructed in 1927 to provide land based access to the Lummi Indian Reservation from the City of Bellingham. In the 1950's Whatcom County assumed from the BIA the responsibility for road repairs and maintenance. In 1991 Whatcom County officially closed the road to through traffic and announced that it had no plans to repair the road. At this point the Lummi Nation was forced to take the role of lead agency for this project.

3. Brief History of Lummi Shore Road Reconstruction Project

The project has been underway since 1992. Beginning with an Inter-local Agreement between Whatcom County and the Lummi Nation, a well coordinate team of government agencies and private interests have worked in a cooperative manner to move this project forward. This team includes the Whatcom County Division of Public Works, B.I.A. Roads Division, Washington State Department of Transportation, and FHwA, Federal Lands Highway Program.

4. Lummi Shore Road Reconstruction Project Accomplishments

a. Over $1.5 million has already been expended on this project. This includes $630,000 spent on Section 14 Corps Emergency Shoreline Protection, $300,000 of engineering expenses, $300,000 on administrative function, and nearly $300,000 on the current Corps of Engineers Feasibility Study.

b. The on-going Corps of Engineers Feasibility Study for the Section 103 Project will be completed in FY 1996 and designs plans and specifications could begin toward the end of FY 1996. Construction would begin and end in FY 1997.

c. The Lummi Nation has secured a $4.4 million grant from the FHwA Public Lands Highway Discretionary Program through the State of Washington Department of Transportation for the roadway construction and drainage improvements which will follow the shoreline stabilization work.

BUREAU OF RECLAMATION - FY97 BUDGET REQUEST BACKGROUND

The Lummi Nation has identified and prioritized water system infrastructure needs for the Lummi Reservation. The Lummi water system was constructed by the IHS over the past 30 years by connecting wells and homes and integrating small private systems in a piecemeal way, without a comprehensive plan. The system is outdated and inefficient, and unable to meet the needs of the growing reservation population. There are currently large areas of reservation land on which no homes can be built for lack of water service. The Lummi Housing Department has over 600 applications for homes. The limited saltwater-intruded groundwater makes individual wells unfeasible and unwise from a resource management and public health perspective. IHS funding is limited, and is devoted to residential over system needs. The most immediate and pressing need for the system is for water storage and improved water pressure. Reservation public safety for fire protection of existing homes and the ability to construct new homes is severely compromised until the following projects are completed.

1. Water line connection/intertie of 300 linear feet-------$7,000

Where this water line dead-ends, water pressure to homes is low, and an immediate need is a short connection to intertie and loop the system in the southwestern Lummi Peninsula. While it is a short intertie, it is an important measure needed to system efficiency and water pressures.

2. Pressure tank modifications to existing tanks------------$30,000

One of three storage tanks is not in use because it lacks a pressure altitude valve, reducing system flow in the system for the central Lummi Peninsula. This is a serious public safety hazard and reduces water flow to some homes The IHS determined that, in 1992, the two remaining tanks provided only two days of storage volume. Since then more than 100 customers have been added and a water main has been enlarged, and the problem is even more severe.

The solution proposed by tribal and IHS engineers is to install altitude valves in each of the three existing tanks that will allow the system to maintain good pressures and keep the tanks on line for storage and fire protection, as the tanks will fill at night and be pumped during the day.

3. New water storage tank -------$490,000

The new 600,000 gallon tank, at the highest point on the Lummi Peninsula, is the first step in developing a flexible, efficient and comprehensive water system that provides for fire flows to meet standards, extensions into unserved areas, interties to loop the system, and protection of the aquifer when the available groundwater recharge is low. The Lummi Water system is dependent primarily on groundwater from an aquifer that suffers from saltwater intrusion, and tribal water resources staff monitors and reduces withdrawals as needed to protect the aquifer. The alternate supply, imported and purchased from nearby Bellingham, is extremely costly to the Lummi Water District and its customers. A storage tank will improve overall storage capacity to meet current and immediate needs due to growth of the customer base from tribal and non-tribal home construction, as well as for expanding economic development by the tribe.

Total Bureau of Reclamation Request **$527,000**

Thank you again for this opportunity to present oral testimony.

PREPARED STATEMENT OF ASSINIBOINE AND SIOUX TRIBES OF THE FORT PECK RESERVATION, MT

A. THE FORT PECK RURAL, MUNICIPAL AND INDUSTRIAL WATER SUPPLY PROJECT

The Assiniboine and Sioux Tribes seek the Committee's support to ensure that a safe and reliable Municipal, Rural and Industrial water supply will be available throughout our Reservation and our Region The Fort Peck Assiniboine and Sioux Tribes respectfully request funds to continue planning of the Fort Peck Assiniboine and Sioux Municipal, Rural and Industrial Water (FPSAMRI) Project in the amount of $210,000 from the Bureau of Reclamation's General Investigations budget.

The Tribes would like to thank the Committee for its past support of this Project. The funds previously appropriated funded the Needs Assessment and the Feasibility Study for this Project. Both of these reports were important steps in the process of realizing this Project

The funds requested for FY 1997 will be used to conduct the final planning studies of the Project within the Reservation and to incorporate planning studies for the off Reservation communities into a *Final Engineering Report*. The Fort Peck Tribes urge the Subcommittee to inquire of the Bureau of Reclamation respecting the capability of the Tribes to effectively utilize the FY 1997 funds.

1. NEEDS ASSESSMENT

As the Committee knows, the Needs Assessment completed by the Tribes and the Bureau of Reclamation found significant problems with the existing water sources on the Fort Peck Reservation.

Specifically, the Needs Assessment documented the deficiencies, both in quantity and quality, of the water supply for Indian and non-Indian residents on the Reservation. This Needs Assessment also examined the current and expected future water needs of the Reservation. The study confirmed the need for an MR&I project for the Fort Peck Reservation.

As the Needs Assessment documented, we are plagued by major drinking water problems on the Reservation - including both an inadequate supply and unacceptable quality of our water. Our existing water sources are of extremely poor quality. Sulfate levels in Fort Kipp exceed the standard by four times The iron levels in Poplar, Brockton, Frazer and Fort Kipp are one and half to five times the standard The sodium levels are four to twenty times greater than the Missouri River, the source of the proposed water system. This has significant impacts our residents with high blood pressure. The Groundwater often exceeds the standards for total dissolved solids, iron, sulfates, nitrates, and in some cases for selenium, manganese, and fluorine. Bacterial contamination of municipal water distribution systems has also been a recurring problem. Moreover, one of our aquifers has been destroyed by brine injections, due to oil production on the Reservation.

Several of our local water systems have had occurrences of biological contamination. As a result, the Indian Health Service and the Tribal Health Office have issued several public health alerts encouraging users to boil the water before drinking it. In several of the Reservation Communities, the residents buy bottled water at a cost of at least $75 a month. Those who cannot afford to buy bottled water must continue to use the existing water source. In short, the Needs Assessment confirmed that a new water system from the Missouri River, a safe and plentiful water source at our southern boundary, is needed to protect the health of our people.

The quality of our water is comparably poorer than that of the other Projects that the Subcommittee is now assisting. Table 1 compares water quality of communities within the proposed Fort Peck Project Area with water quality of communities in other Projects authorized or pending before Congress. As Table 1 discloses, the general chemical quality of the water as measured by total dissolved solids and sulfates is comparable in the Fort Peck area with other on-going or pending projects.

2. FEASIBILITY STUDY

Once the Needs Assessment was completed, the Tribes requested the Bureau of Reclamation to undertake a Feasibility Study of constructing a Reservation wide MR&I project. This study showed that a regional MR&I water supply system using Missouri River water as the supply source is a feasible alternative for addressing the water quality problems that currently exist. Such a project would bring safe and reliable water to rural residents of our Reservation not currently served by a public water system.

The Tribes plan to meet their MR&I needs with a Reservation-wide piped distribution system to supplement or replace existing water sources. This type of system has been successfully used in South Dakota (the WEB project) and brings economies of scale to reduce project construction and operation and maintenance costs. Our design population of 19,902 persons (13,900 within the reservation) can be served with relatively short pipeline distances extending 75 miles from the treatment plant at the most distant locations. Most of the demand lies within a 30 mile distance from the treatment plant. (See figure)

3. OFF-RESERVATION COMMUNITIES AND RURAL WATER USERS

Because all residents of this area have extremely poor water quality, several off-Reservation communities have significant interest in this Project. Communities around the eastern, western and northern boundaries of the Fort Peck Indian Reservation rely primarily on groundwater, which is poor and comparable to groundwater supplies on the Fort Peck Indian Reservation. The best way to address the concerns of our off-Reservation neighbors is to include their communities in our Project. Including these communities as initial participants in this Project, would realize savings for them, the State of Montana, and the Federal Government. The requested funds will assist us in developing a cost effective project with a cost sharing formula for off-reservation facilities that is acceptable to local communities and Congress. We hope that ultimately this Project will not only improve the health and the economy of the entire region, but also strengthen our relationship with our neighboring communities.

4. DEVELOPING A FINAL COST REPORT

The Tribes' initial cost report concludes that the total Project cost to serve the entire Reservation and sized to carry off-reservation water demands is $101 million. This amount includes the cost ($15 million) of facilities to carry water to meet off-reservation municipal, rural and industrial demands. Assuming a cost share of 75% federal and 25% local under the Safe Drinking Water Act the local cost share would be less than $4 million.

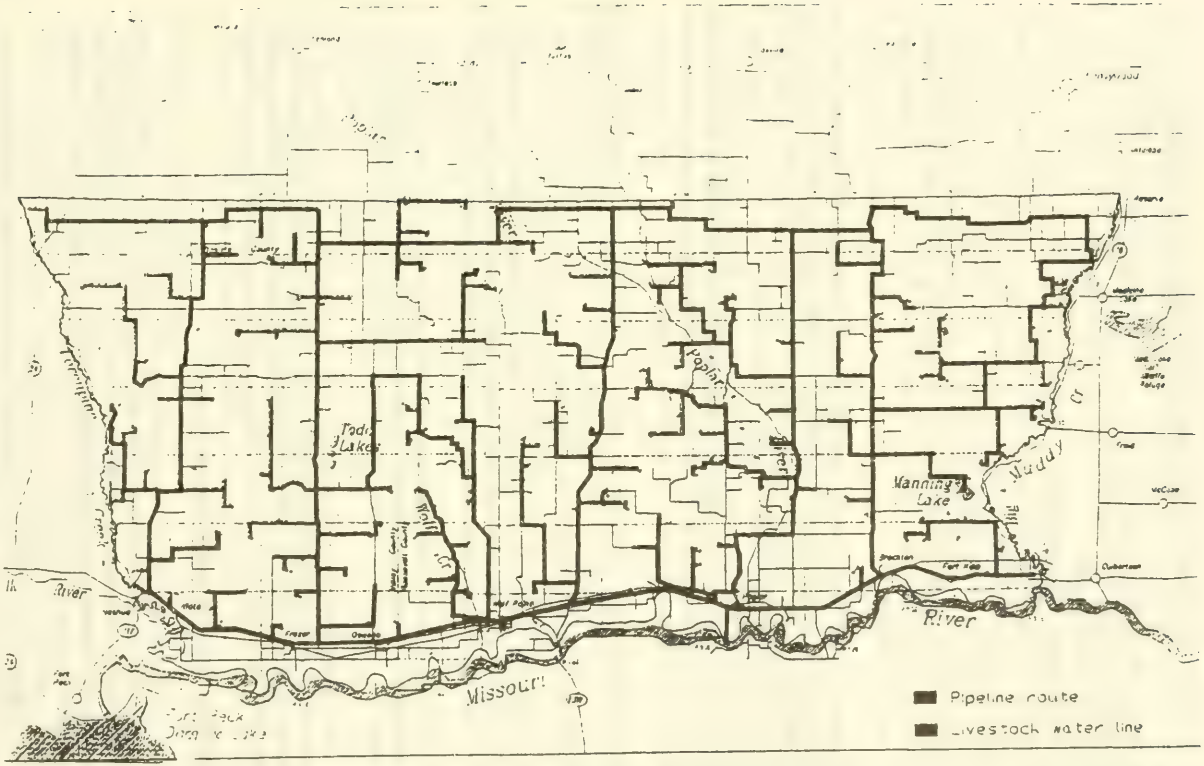
The cost of annual operation and maintenance of the facilities of the Fort Peck Tribes to deliver water to off-reservation communities is estimated at $1.12 per thousand gallons. Off-reservation users will have additional costs per thousand gallons to reflect the cost of operating and maintaining off-reservation transmission and distribution facilities. Those costs are not yet determined. The $210,000 requested by the Tribes will enable the Tribes to finalize this cost analysis. When the total is determined, we are confident that it will compare favorably with Mni Wiconi costs of $1.46 per thousand gallons.

5. CONCLUSION

We are now working with the Montana delegation to introduce legislation to authorize the construction of this Project. The assistance of the Subcommittee with FY 1997 appropriations in the amount of $210,000 will go far in assisting the Tribes in this worthwhile project. Not only will the drinking water supplies of the region be markedly improved, the Tribal membership will benefit from the employment and earnings during construction, and we can work side-by-side with our northeast Montana neighbors to develop a quality project for the improvement of the health and economy of the entire region.

WATER QUALITY INDICATORS OF COMPARABLE PROJECTS
SULFATES AND TOTAL DISSOLVED SOLIDS MARKED FROM POOREST TO BEST

Project	Community	Sulfate (mg/l	Project	Community	Total Dissolved Solids (mg/l)
Lewis and Clark	Upper Limit	1,500	Fort Peck	Fort Kipp	2,731
Mni Wiconi	Rolishoo	1,139	Lewis and Clark	Upper Limit	2,603
Fort Peck	Fort Kipp	1,120	Mni Wiconi	Red Shirt	2,331
Mni Wiconi	Red Shirt	1,080	Mni Wiconi	Reliance	2,051
Mni Wiconi	Murdo	1,042	Mni Wiconi	Murdo	1,701
Mni Wiconi	Kannebac	954	Mni Wiconi	Kannebec	1,763
Mni Wiconi	Prasho	644	Mni Wiconi	Prasho	1,393
Lewis and Clark	Lower Limit	538	Fort Peck	Poplar	1,389
Fort Peck	Frazer	498	Fort Peck	Frazer	1,103
Mni Wiconi	Horse Creek	410	Lewis and Clark	Lower Limit	1,178
Mni Wiconi	Wakpanni Lake	398	Mni Wiconi	Wakpanni Lake	1,125
Fort Peck	Brockton	212	Mni Wiconi	Horse Creek	883
Fort Peck	Poplar	103	Fort Peck	Brockton	741
Mni Wiconi	Pine Ridge Village	70	Mni Wiconi	Pine Ridge Village	436



FORT PECK INDIAN RESERVATION

Entire Reservation System

Figure ES.3

LETTER FROM GOV. MARC RACICOT, STATE OF MONTANA

March 6, 1996

Honorable John Myers, Chairman
House Energy and Water Development
Appropriations Subcommittee
2362 Rayburn House Office Building
Washington D.C. 20515

Dear Chairman Myers.

The Fort Peck Assiniboine and Sioux Tribes are planning the development of a rural water project that will bring safe and ample drinking water to their Reservation and a large area of northeastern Montana.

I would appreciate the support of the Subcommittee for the $210,000 requested by the Tribes for FY 1997 for the continued planning of their project. Montana and local communities will join the Tribes in the coming months to fully evaluate the costs of connecting the project to serve off-Reservation communities.

The appropriations requested will permit the Tribes to conclude planning of a project that will greatly improve the quality of life on the Reservation and throughout northeastern Montana where water supplies are of the poorest in quality.

PREPARED STATEMENT OF JOHN FRATT, EXECUTIVE DIRECTOR, PORT OF KALAMA

Mr. Chairman and Members of the Committee:

My name is John Fratt and I am Executive Director of the Port of Kalama in Kalama, Washington. I also chair the group of seven lower Columbia River ports in Oregon and Washington that are sponsoring the Columbia River Channel Improvement Project.

Throughout the years, this subcommittee has shown strong support for our efforts to improve the Columbia River transportation system. Please accept my very sincere appreciation for that advocacy.

In 1995, more than 2,146 ocean-going ships carried 38 million tons of cargo valued at an estimated $14 billion through the private and public facilities located at these seven ports. At the Port of Kalama, we throughput 10.35 million metric tons of grain at our two facilities and we handled 353 ships. This was a doubling of the tonnage that we handled in 1994.

Lower Columbia River Channel Deepening Needed

Ships nearly 1,000 feet long and drawing 41-42 feet are commonplace in today's marine markets. These new ships bring increased efficiency and economies of scale, yet they also present tremendous challenges for US ports. In an effort to keep pace with this new shipping size and technology, the lower Columbia River ports are well into a feasibility study to deepen our navigation channel.

Here is what is at stake today. The Columbia River is the second largest export gateway on the West Coast. More than 90 percent of the region's goods move by way of the Columbia River to overseas customers. For the nation's wheat producers, the Columbia River is the largest export gateway in the US, handling approximately one-third of the country's production. From Montana, as one example, three-quarters of the wheat crop from that state reaches export markets by way of the Columbia River. Corn from the Dakotas and Nebraska rides the Columbia to the Pacific Rim. The Peavey facility at Kalama receives more than 80 percent of its product from the midwest of the United States and last year three-fourths of its ships left light-loaded because of draft restrictions.

Based on the recent growth of trade through our ports, one can easily see how much more important this channel will become in the years ahead. Our export volumes, coupled with effective steamship service to key markets, will continue to be important to businesses around the country that use our system. Our only major weakness is the current 40-foot depth of our deep-draft navigation channel.

That is why building and maintaining a navigation channel that can handle today's larger vessels and those on order for the future is such a critical need. Nearly a decade ago, we began planning this navigation improvement with increasing vessel size in mind. Before we were able to bring the project on-line, larger and deeper vessels began calling at sponsor ports. Today their presence reminds us regularly of the critical need for this project to move ahead rapidly.

Channel Maintenance Essential

Once channels are dredged, they also must be maintained. Our ports have a history of a 100-year partnership with the federal government in operating and maintaining the Columbia River's navigation system. In 1890, the Portland District of the Corps of Engineers completed a study defining a 25-foot deep channel from Astoria to the Portland/Vancouver area. Completion of the project came in 1893. Over the years, this federal/local partnership has seen the successful authorization and construction of two more channel improvements: deepening to 35 feet, completed in 1950, and construction of the existing 40-foot channel, dedicated in 1973.

Our challenge today comes in the face of the transition within the federal government, particularly with the Corps of Engineers. Faced with a wide range of fiscal priorities and restraints, the Corps of Engineers is being pulled in a number of directions. Yet, if maintenance of the nation's navigation system suffers and we can't keep our waterways functioning at all times at project depth, port customers will suffer serious economic impacts. I know this subcommittee understands the importance of channel maintenance, but the fact is the Corps needs to be encouraged to do a better job in this area.

I encourage this subcommittee to give the Corps of Engineers the means to take a more proactive approach in its advance maintenance program. Rather than allowing channels to shoal to less than project depth before beginning remedial dreding, let's encourage the Corps to be more proactive.

Ports will move aggressively to meet the demands of their shipper customers in our own planning and financing of port facilities, such as docks, wharves, and terminals. Our success in international competition also will be determined in large measure by the role played by the Corps of Engineers in its operations and maintenance function.

Channel Turns Need Modification

Prompted by a recent navigation mishap in the lower Columbia River, ports and the Columbia River Pilots have asked the Corps to examine modifications to two turns in the channel. Simulation of these turns by the Waterways Experiment Station is the most likely next step, provided money is available for the review. The urgency of this situation demands an early resolution to the problem and we are asking the subcommittee to support an appropriations for the special study of technical modifications to these turns.

Conclusion

Again, Mr. Chairman, our navigation channel is a remarkable success story and part of the marine system that moves 95 percent of all US international trade. Please understand that our regional and national trade significance is at a critical crossroads. The world's fleet is moving to larger vessels and our studies have consistently shown the economic benefits of a deeper channel.

Your subcommittee can assist tremendously by its support for a continuation of the feasibility study, for a continuing high priority for operations and maintenance dredging, and for work on essential turn improvements in the lower Columbia River.

Thank you for this opportunity to provide information about the Columbia River and the importance of its navigation channel.

CALIFORNIA NAVIGATION PROJECTS

PREPARED STATEMENT OF STAN WISNIEWSKI, CHAIRMAN, THE CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

FORWARD

Driven by a need to reign in the federal budget, the Clinton Administration, in February 1995, announced its intention pull back from 200 years of support for the nation's maritime system of ports, harbors, and channels.

These federal retrenchments occur at a time in the nation's history, and in California's history in particular, when our maritime needs are at their greatest. The burgeoning Pacific Rim trade phenomenon requires that channels be deepened, harbors be expanded for capacity, and that highway and railroad links be renovated and improved. We believe the federal policy changes are misguided and will not result in a net budget savings. To the contrary, pulling back investment into the nation's maritime infrastructure, and especially California's maritime infrastructure, will hamstring the growth of customs revenues, and other tax revenues which emanate from the nation's trade sectors.

MARITIME POLICY REVIEW

The following specific policies threaten the short and long-term growth of the maritime sector of the California and United States economies.

POLICY #1 -- THERE IS NO OVERALL FEDERAL MARITIME POLICY

A lack of clear objectives has caused the federal government to adopt policies which are inconsistent at best, and contrary to the maritime interests of the nation, at worst.

In allegorical terms, the federal government is unable to take a correct compass heading because it does not know where it intends to go. Other nations of the western hemisphere (Mexico and Canada) are seeing clearly that the expansion of their ports and navigation systems is critical to their international trade economies. The United States maritime policy is adrift and directionless.

C-MANC challenges the Administration and Congress to adopt clear objectives which further the maritime needs of the country. The nation's need to reduce federal expenditures and balance the budget are obvious limiting factors; but, objectives can be set and met any number of ways. They will be discussed in the remainder of this advisory paper. But, the current situation, which lacks any stated objectives whatsoever, gives neither the Congress, nor the Administration, nor the ports themselves, any guidance with which to accomplish the needs of the nation. It is an intolerable state of affairs, that the strongest nation in the world is directionless in maritime policy.

C-MANC RECOMMENDATION

We submit the following as a basic framework for a national policy.

I Recognize that maritime trade is a critical sector of the nation's economy and must be provided for with a modern and efficient navigation, port and harbor system.

II Promote the expeditious renovation and improvement of the nation's maritime assets, including:

- Deepening of channels and harbor berths to accommodate the world's largest cargo ships.
- Improving the terminal handling facilities at the nation's ports.
- Improving highway and railroad links to the ports and harbors so that the sea lanes and land bridges create seamless intermodal routes to, from, and across the nation.

III Develop a funding system for state maritime infrastructure banks, which would provide for low cost loans to ports and harbors. Provide grants to infrastructure banks for start-up.

IV Adopt the national dredging policy proposed by the American Association of Port Authorities (attachment #3). This approach to the historic environmental and physical problems of dredging is the only way to streamline the maintenance and upgrade of the nation's navigation system.

POLICY #2 -- PROPOSED FEDERAL DIVESTITURE OF NATION'S SMALL CRAFT HARBORS

Beginning in FY 98, small craft harbors that do not contribute to the harbor maintenance trust fund will cease to be maintained by federal appropriation. This includes dredging and the maintenance of hard structures. This effects approximately 500 harbors across the United States. This will save the federal government approximately $500 million. This is relatively small, but it represents an enormous burden on the small craft harbors. The cost of dredging and maintenance of jetties is substantial compared with the budgets of those entities who operate the facilities.

We believe that divestiture is going to happen in some form; but, we believe there are alternative formulas and alternative time frames in which this can be accomplished. Small craft harbors have proved themselves to be resourceful and viable, but they need time to make the enormous adjustment that some of them will have to make in order to take on full responsibilities now borne by the federal government.

C-MANC RECOMMENDATION

A. Transfer dredging responsibility to local sponsor over a seven year period in which the sponsor gradually takes over the increasing amount of responsibility.

B. The Corps of Engineers shall maintain the jetty systems and other hard structures on a 50% local cost share basis. In this way, the navigation system will remain a comprehensive federal network.

POLICY #3 -- FEDERAL SHARING OF UPLAND DREDGE MATERIAL DISPOSAL COSTS

The 1986, WRDA legislation did not give an equal cost sharing factor to ocean and upland dredge material disposal methods. The federal government does not participate at all in upland disposal, while ocean disposal is fully cost shared by the federal government. This is prejudicial to those ports which have run out of water options, and which are forced to use upland disposal as their only means of completing a project.

C-MANC RECOMMENDATION

Change the federal government's participation in upland disposal to reflect the same proportion that it now participates in water disposal projects.

POLICY #4 -- THERE IS NO FEDERAL POLICY ON ASSISTING THE MARITIME INDUSTRY IN REGULATORY REFORM

In obtaining regulatory agency permits for maritime improvement projects, the ports face an increasingly complex web of bureaucratic procedures. Conflicting requirements from differing regulatory agencies cause delays and stoppages of the developmental process.

C-MANC RECOMMENDATION

I. We recommend that the federal government, in its intent to "reinvent" the government for cost savings and customer service objectives, look to regulatory streamlining as a means of accomplishing those objectives.

  - Joint agency programs for processing permits.
  - Consistent and coordinated sediment testing protocols.
  - Keeping and strengthening the Corps of Engineers' role in being the lead agency for Section 404 permitting.

Major industries which depend on ocean access:

- Commercial fishing
- Mariculture
- Kelp harvesting
- Offshore oil and gas
- Coastal mineral production
- Port activity: Water transportation, ship building and repair
- Coastal tourism and recreation

II. Adopt a "National Dredging Policy" as proposed by the American Association of Port Authorities (attachment #3).

III. Adopt regulatory and statutory changes to the Clean Water Act. The Water Resources Development Act, and the Endangered Species Act, to ensure oversight and timely consideration of dredging and marine construction permits.

POLICY #5 -- DELAY OF WATER RESOURCES DEVELOPMENT ACT

Congress has not passed a Water Resources Development Act since 1992. This delay retards the nation's ability to provide for navigation projects which are vitally needed to accomplish maritime objectives.

C-MANC RECOMMENDATION

Pass a 1996 WRDA which reflects the maritime needs of the nation.

RECOGNITION OF FEDERAL MARITIME POLICY ACCOMPLISHMENTS

STREAMLINING OF THE CORPS OF ENGINEERS' PERMITTING PROCESS

The Corps has made a concerted effort to reduce the time it takes to process Section 404 permit applications. The Corps has changed its procedures to include:

A. Early assignment of project manager and a client relationship with applicants.

B. Responsibility for timely processing.

C. Oversight of time delay problems.

We applaud the Corps' progress in this area. It ultimately reduces the cost of projects and results in earlier construction opportunity.

APPOINTMENT OF H. MARTIN LANCASTER AS ASSISTANT SECRETARY OF THE ARMY

The ASA position had been vacant since President Clinton's inauguration in January, 1993. This has caused a serious void in maritime leadership. The appointment of H. Martin Lancaster as permanent Assistant Secretary will fill that void and help develop the maritime policies and missions discussed in this paper. C-MANC applauds the appointment.

Attachment #1

CALIFORNIA COASTAL ECONOMICS[1]

- Major industries which depend on ocean access:
  - -Commercial fishing
  - -Mariculture
  - -Kelp harvesting
  - -Offshore oil and gas
  - -Coastal mineral production
  - -Port activity: Water transportation, ship building and repair
  - -Coastal tourism and recreation

• Total gross product of ocean dependent industries	$ 17.3 billion
• Total jobs involved in ocean dependent industries	370,000

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[1] Only includes top seven industries. Does not include value of exports & imports. Extract: "*California's Ocean Resources: An Agenda for the Future.*, a report by the California State Department of Resources, July, 1995 (draft).

Attachment #2

CALIFORNIA TRADE STATISTICS

Total California Export	$ 69B	17.2% of all U.S. trade
Growth in Exports		100% since 1987
Goods and Crop Product Export	$ 6.6B	35.7% of all U.S. trade
Total California Seaport Operations 1993	$150B	20% of all U.S. seaport operations
Total California Export / Import Operations - Land / Sea/ Air 1993	$243B	

MARITIME FEDERAL POLICIES CONTINUE TO HAMPER CALIFORNIA'S IMMEDIATE AND LONG-TERM ECONOMIC HEALTH

WHO/WHAT IS C-MANC?

The California Marine Affairs and Navigation Congress (C-MANC), embraces most of the ports, cities, counties, harbor districts and related associations and industries throughout the State of California. We are joined in common interests in support of commercial deep draft and recreational navigational projects, together with related undertakings, such as beach erosion, dredging impacts, taxing policies on navigation, regulatory reform and to assure adequate recognition of the importance of commercial navigation, fisheries, and water-related recreation. Our policies and objectives are as follows:

-The Conference assures the fullest coordination and maximum support of its recommendations and testimony to the Congress, Corps of Engineers, Office of Management and Budget, State of California, and to other federal, state, and local agencies as may be involved with navigation and related public works.

-By voluntary participation of public and private agencies and organizations, the Conference offers maximum input of planning, expertise and analyses toward meeting the needs of navigation, fisheries and water-related recreation, through efficient utilization of harbors, channels, waterways and coastal resources.

-Through its public membership and by liaison with other official bodies, the Conference endeavors to assure that the general welfare of the state and nation are best served by the projects and programs which it supports.

-The Conference reviews proposals, legislation and administrative actions by government agencies which, if found to be without adequate consideration of all the elements involved in meeting the needs for navigation, fishing, coastal resources and recreation, or lacking appreciation of the impact of efficient, waterborne transportation and its security aspects, are sought modifications or are opposed.

-Fullest cooperation is provided to public and private agencies to maximize total ecological evaluations in all projects, and to incorporate environmental enhancement as a major criterion along with incorporation of economic balance in the public interest

Attachment #3

NATIONAL DREDGING POLICY AS PROPOSED BY THE AMERICAN ASSOCIATION OF PORT AUTHORITIES

Policy Principles:

1. Dredging our nation's harbors in a timely and cost-effective manner is good economic and environmental policy. Our country cannot afford indecision and gridlock on these issues. Wherever possible, regulatory review should be consolidated and streamlined.

2. Unless adequate and environmentally compatible dredged material disposal capacity is assured, dredging operations at U.S. ports will be jeopardized. A long-term, implementable plan to identify disposal sites should be developed on a national level, and federal funds provided for the construction of those sites.

3. The vast majority of dredged material is not contaminated and can be managed without significant environmental impact by depositing it at the appropriate aquatic disposal sites. Therefore, unbiased consideration should be given to all disposal alternatives, based on a relative assessment of environmental risk and overall cost.

4. Clean dredged material should be viewed as a resource, and beneficial uses should be encouraged when funds can be identified to pay for that use. There is a national interest in encouraging beneficial use of dredged material for such things as wetland creation and beach nourishment, therefore, where it is more expensive than other disposal options beneficial use should be a federal, not local sponsor responsibility.

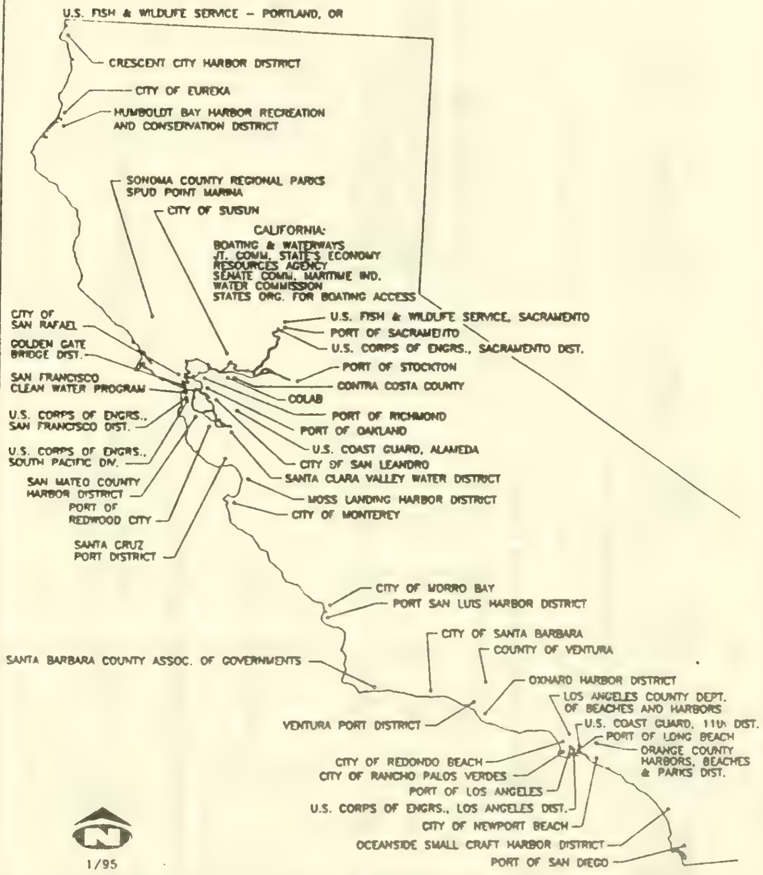
5. It is neither environmentally productive, nor cost effective, to direct limited public resources to the clean-up of the large volume, but low level, pollutants usually found in sediments at navigation dredging projects.

6. In those cases where dredged material contains low levels of contaminants, elimination of any significant negative environmental impact through management measures, such as capping, should be emphasized.

7. Decontamination technology, although a desirable goal, has not been shown to be feasible or affordable on a broad scale. However, federal research and development of cost-effective decontamination technology should be given a high priority.

8. Pollution should be controlled at the source to prevent contaminants from settling in the sediments of our nation's harbors and channel bottoms, thereby avoiding potentially costly clean-up. Polluters should be identified and required to pay the cost of contaminated sediments clean-up wherever possible.

MEMBERSHIP ORGANIZATION MAP
(Public Agencies)


U.S. FISH & WILDLIFE SERVICE – PORTLAND, OR
CRESCENT CITY HARBOR DISTRICT
CITY OF EUREKA
HUMBOLDT BAY HARBOR RECREATION AND CONSERVATION DISTRICT
SONOMA COUNTY REGIONAL PARKS SPUD POINT MARINA
CITY OF SUISUN
CALIFORNIA:
BOATING & WATERWAYS
JT. COMM. STATE'S ECONOMY
RESOURCES AGENCY
SENATE COMM. MARITIME IND.
WATER COMMISSION
STATES ORG. FOR BOATING ACCESS
CITY OF SAN RAFAEL
GOLDEN GATE BRIDGE DIST.
SAN FRANCISCO CLEAN WATER PROGRAM
U.S. CORPS OF ENGRS., SAN FRANCISCO DIST.
U.S. CORPS OF ENGRS., SOUTH PACIFIC DIV.
SAN MATEO COUNTY HARBOR DISTRICT
PORT OF REDWOOD CITY
SANTA CRUZ PORT DISTRICT
U.S. FISH & WILDLIFE SERVICE, SACRAMENTO
PORT OF SACRAMENTO
U.S. CORPS OF ENGRS., SACRAMENTO DIST.
PORT OF STOCKTON
CONTRA COSTA COUNTY
COLAB
PORT OF RICHMOND
PORT OF OAKLAND
U.S. COAST GUARD, ALAMEDA
CITY OF SAN LEANDRO
SANTA CLARA VALLEY WATER DISTRICT
MOSS LANDING HARBOR DISTRICT
CITY OF MONTEREY
CITY OF MORRO BAY
PORT SAN LUIS HARBOR DISTRICT
CITY OF SANTA BARBARA
COUNTY OF VENTURA
SANTA BARBARA COUNTY ASSOC. OF GOVERNMENTS
OXNARD HARBOR DISTRICT
LOS ANGELES COUNTY DEPT. OF BEACHES AND HARBORS
U.S. COAST GUARD, 11th DIST.
PORT OF LONG BEACH
ORANGE COUNTY HARBORS, BEACHES & PARKS DIST.
VENTURA PORT DISTRICT
CITY OF REDONDO BEACH
CITY OF RANCHO PALOS VERDES
PORT OF LOS ANGELES
U.S. CORPS OF ENGRS., LOS ANGELES DIST.
CITY OF NEWPORT BEACH
OCEANSIDE SMALL CRAFT HARBOR DISTRICT
PORT OF SAN DIEGO
N
1/95

Public agency members shown represent only those associated with a specific geographical spot. For a complete listing of all members contact the C–MANC office.

(Amounts in Thousands)

PROJECT	TOTAL COST C OF E	FY 1997					
		BALANCE AFTER FY 1995	FY 1996		FY 1997 PRESIDENTS BUDGET	FY 1997 C-MANC RECOMMENDATIONS	PURPOSE OF FUNDING
			CONFERENCE REPORT	ANTICIPATED WORK ALLOWANCE			
POTENTIAL NEW SHORELINE PROTECTION STUDIES							
Moss Landing Harbor/Erosion Study	400	400	0	0		100	Initiate Recon Report
SHORELINE PROTECTION STUDIES IN PROGRESS							
Encinitas	1,000	769	169	125		300	Initiate Feasibility Study
San Diego County, Cities of Oceanside and Carlsbad	1,910	1,000	300	222		0	Discontinued due to lack of local support
Malibu Coastal Area	1,090	686	200	148		200	Initiate Feasibility Study- Los Angeles County
Peninsula Beach/City of Long Beach	400	400	200	148		300	Complete Recon Report and Initiate Feasibility Study
Rancho Palos Verdes	1,230	320	0	0		300	Continue Feasibility Study
Silver Strand Shoreline - Coronado	875	525	0 1/	0		200	Initiate Feasibility Study
Ventura and Santa Barbara County Shoreline	600	400	200	148		300	Continue Recon Report

1/ See Construction, General

PROJECT	TOTAL COST C OF E	BALANCE AFTER FY 1995	CONFERENCE REPORT	ANTICIPATED WORK ALLOWANCE	FY 1997 PRESIDENTS BUDGET	FY 1997 C-MANC RECOMMENDATIONS	PURPOSE OF FUNDING
POTENTIAL NEW SPECIAL STUDIES							
Southern California Oil Spill Emergency	500	500	0	0			
NEW PRECONSTRUCTION ENGINEERING AND DESIGN							
San Clement Creek	9,600 (1,600)	(1,600)	150	111		900	Continue Design

(Amounts in Thousands)
FY 1997

			FY 1996				
PROJECT	TOTAL COST C OF E	BALANCE AFTER FY 1995	CONFERENCE REPORT	ANTICIPATED WORK ALLOWANCE	FY 1997 PRESIDENTS BUDGET	FY 1997 C-MANC RECOMMENDATIONS	PURPOSE OF FUNDING
			POTENTIAL NEW NAVIGATION STUDIES				
San Leandro Bay - Alameda County	375 1/	325	0	0			
San Francisco Bay, Bar Channel	500	500	0	0		300	Initiate Recon Report
Southampton Shoal Channel	500	500	0	0		300	Initiate Recon Report
Stockton Deep Water Ship Channel (Deepening)	650	650	0	0		650	Initiate and complete Recon Report
San Diego Harbor (Deepening)	430	430	0	0		300	Initiate Recon Report
Ventura - Sand Bar	500	500	0	0		350	Initiate Recon Report
1/ Includes 850 prior to 9/30/78							
			NAVIGATION STUDIES IN PROGRESS				
Marina del Rey and Ballona Creek	950	559	200	148		500	Continue Feasibility Study
Newport Bay Harbor	1,015	547	250	185		200	Continue Feasibility Study
Pillar Point Harbor	910	796	225	167		200	Continue Feasibility Study
Port Hueneme	990	440	300	207		200	Continue Study
			CONTINUE PRECONSTRUCTION ENGINEERING AND DESIGN				
Crescent City Harbor	1,698 (660)	(660)	(50)	(37)		490	Complete Design
Noyo River & Harbor	20,000 (3,830)	(721)	(559)	(414)		0	Complete Special Report FY 96
			POTENTIAL NEW CONSTRUCTION				
Humboldt Harbor and Bay (Deepening)	11,800	11,800	410 1/	304 1/		3,000	Initiate Construction
Port of Long Beach (Deepening)	14,500	14,500	750 1/	556 1/		17,000	Initiate and complete Construction
San Rafael Canal	20,475	20,475	250 1/	185 1/		200	Initiate Construction
Santa Barbara Harbor	4,670	4,320	50 1/	37 1/		1,300	Initiate Construction
Santa Monica Breakwater	5,100	5,100	350 1/	259 1/		4,000	Initiate Construction

1/ PED Funds - Design

(Amounts in Thousands)

PROJECT		TOTAL COST C OF E	BALANCE AFTER FY 1995	FY 1996 CONFERENCE REPORT	FY 1996 ANTICIPATED WORK REPORT	FY 1997 PRESIDENTS BUDGET	FY 1997 C-MANC RECOMMENDATIONS	PURPOSE OF FUNDING
				CONTINUING CONSTRUCTION PROJECTS				
Los Angeles Harbor	(N)	101,700	96,610	250	229		850	Continue Construction
Morro Bay Harbor	(N)	2,200	800	124	114		0	Complete Construction in 96
Oakland Harbor	(N)	56,025	17,945	14,000	12,839		8,306	Complete Construction
Richmond Harbor	(N)	24,350	15,897	3,296	3,023		15,274	Complete Construction
Sacramento River Deep Water Ship Channel	(N)	24,900	17,183	100	92		500	Continue Construction
San Francisco Bay to Stockton (John F. Baldwin & Stockton Ship Channels)	(N)	172,250	107,642	800	734		600	Continue Construction
Silver Strand Shoreline Imperial Beach	(BE)			200	0		200	Initiate Re-evaluation
Sonoma Baylands Wetlands Demonstration Project	(N)	6,491	459	500	459		0	Complete Construction in 96
Surfside-Sunset & Newport Beach	(BE)	43,200	26,832	100	92		5,500	Complete Stage 10 Beach Replenishment

NOTE:
(N) NAVIGATION
(S) SHORELINE
(BE) BEACH EROSION

OPERATIONS AND MAINTENANCE

(Amounts in Thousands)
FY 1997

FY 1996

PROJECT	FY 1995 OBLIGATIONS	FY 1996 ESTIMATED OBLIGATIONS	FY 1997 PRESIDENT'S BUDGET	TENTATIVE C-MANC FY 1997 RECOMMENDATIONS	PURPOSE OF FUNDING
Bodega Bay Harbor	0	0		0	No maintenance required
Channel Islands Harbor	1,908	856		1,800	Dredging
Crescent City Harbor	0	0		1,700	Breakwater repair
Dana Point Harbor	0	0		0	No maintenance required
Fisherman's Wharf Area, S.F.	0	0		0	No maintenance required
Humboldt Harbor and Bay	2,586	5,124		3,200	Dredging
Los Angeles - Long Beach Harbors	2,418	727		3,500	Dredging in Los Angeles Harbor; hydrograpic comprehensive survey of entire project: and evaluate major rehab of breakwater
Los Angeles River Mouth - Queensway Bay	0	0		3,000	Dredging
Los Angeles - Long Beach Harbors Model	157	154		500	Continue model maintenance and wave guage
Marina del Rey	6,409	108		5,000	Dredging
Monterey Harbor	0	0		0	No maintenance required
Morro Bay Harbor	794	1,907		200	Engineering and Design for FY 98 dredging
Moss Landing Harbor	0	812		1,200	Jetty repair
Napa River	26	0		2,100	Dredging, comprehensive study for disposal of dredge material
Newport Bay Harbor	13	1,216		1,900	Hydrographic survey and rock and concrete repair to east jetty and rock repair to west jetty
Newport Bay Harbor/Dana Point Harbor	0	0		300	Complete planning and environmental studies for a permanent ocean Disposal site
Noyo River and Harbor	486	0		1,600	Dredging, comprehensive study for disposal of dredge material, and jetty repair
Oakland Harbor	1,378	2,121		2,600	Dredging and bridge maintenance
Oceanside Harbor	600	757		800	Dredging and engineering and design for FY 98 dredging
Oceanside Experimental Sand Bypass	1,300	4,300		750	Operate, maintain and monitor completed project
Petaluma River	1,746	1,627		1,800	Dredge across flats and comprehensive study for disposal of dredge material
Pillar Point Harbor	0	385		0	No maintenance required
Port Hueneme	155	130		2,500	Dredging and repair South Jetty
Port San Luis	0	0		0	No maintenance required
Redondo Beach Harbor (King Harbor)	0	0		200	Engineering and design for breakwater repair
Redwood City Harbor	0	2,500		0	No maintenance required
Richmond Harbor	3,058	2,521		3,300	Dredging and training wall repair
Sacramento River					
Sacramento River (30 ft.)	395	2,115		2,100	Dredging and bank stabilization
Sacramento River (Shallow Draft)	215	125		200	Maintain lock; mark wing dams and replace barge
San Diego Harbor	123	1,043		400	Hydrographic survey and comprehensive survey of Zuniga Jetty
San Diego River & Mission Bay	0	0		200	Hydrographic survey and condition survey of jetties
San Francisco Bay-Delta Model Structure	1,403	1,878		2,100	Annual maintenance and operation of visitor center

OPERATIONS AND MAINTENANCE
(Amounts in Thousands)
FY 1997

PROJECT	FY 1994 OBLIGATIONS	FY 1996 ESTIMATED OBLIGATIONS	FY 1997 PRESIDENT'S BUDGET	TENTATIVE C-MANC FY 1997 RECOMMENDATIONS	PURPOSE OF FUNDING
San Francisco Bay Long Term Management Strategy	484	647		100	Final EIS and Final Management Plan
San Francisco Harbor SF Bar Channel (55 ft.)	891	2,174		2,400	Bar Dredging
San Joaquin River	1,277	1,993		2,000	Dredging and Bank Stabilization
San Leandro Marina (Jack D. Maltester Channel)	0	0		1,500	Dredging
San Pablo Bay and Mare Island Strait	1,150	1,378		2,500	Dredge Pinole Shole and dredge Mare Island
San Rafael Creek	0	0		4,000	Dredging
Santa Barbara Harbor	2,104	1,579		1,700	Dredging and advance maintenance dredging
Santa Cruz Harbor	0	0		1,800	Changes to Memorandum of Understanding - re-dredge
Suisun Bay Channel	600	650		750	Dredging
Suisun Channel	0	0		0	No maintenance required
Ventura Harbor	1,285	2,200		3,900	Jetty repair and engineering and design for FY 98 dredging.
Drift Removal (S.F. Harbor and Bay)	2,004	2,134		2,600	Drift removal, maintenance of debris boats, and plans and specifications for a new debris boat

LETTER FROM GERALD L. POPE, EXECUTIVE DIRECTOR, CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE, WEST SACRAMENTO, CA

April 3 1996

Mr Dave Gwaltney
Legislative Assistant
Senate Subcommittee for Energy
and Water Development
131 Dirksen Senate Office Building
Washington D C 20510

Dear Dave

Thanks again for arranging the time you spent with us and our C-MANC membership to discuss appropriations requests we are making to the Senate Subcommittee. As you are aware, the President has now released his budget and all projects not contributing to the Harbor Maintenance Trust Fund have been dropped from the President's appropriations recommendations. Obviously, this means that we will be back before the Committee and you to again seek appropriations for construction and O&M requirements for these smaller ports.

We know that in years to come economic benefits resulting from investment in ports must be quantified. I am enclosing a preliminary report we have prepared which shows the enormous return for each dollar invested We will update this report and use it to support future appropriations requests.

Once again thank you again for your assistance. We appreciate all of your help and look forward to visiting with you on our next trip to Washington.

PREPARED STATEMENT OF ROBERT NICHOL, CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

CALIFORNIA PORTS AND HARBORS

ECONOMIC BENEFIT REPORT

1 The enclosed tables summarize the results of CMANC's California Ports and Harbors Economic Benefit Questionnaire that most of you received The Tables reflect information provided by the U S Army Corps of Engineers South Pacific Division (USACESPD), the U S Maritime Administration (MARAD), and the following cooperating Ports and Harbors

Humboldt Bay
Long Beach
Los Angeles
Morro Bay
Oakland
Oceanside
Port San Luis
Sacramento
Santa Barbara
Stockton

The results for the reporting Ports are presented on Table 1

2 To facilitate understanding of the information in the Table, the following excerpt from "The Economic Structure of California Seaports", Working Paper P-T-42 prepared by The California Sea Grant College Program, is included here

> *"Seaports consist of private and publicly funded enterprises that provide facilities and services to other industries and to households. To perform these functions, each seaport enterprise has employees and payrolls and purchases goods and services from other industries. For every direct job in a seaport industry and for every dollar expenditure by a seaport industry, there are "multiplier" effects in the sense that additional jobs, incomes, and sales are generated in other industries. The jobs and incomes*

> *associated with seaport enterprises themselves are usually referred to as "direct" economic impacts and those associated with the "rippling" of economic activities that stem from payments and purchases by seaport enterprises are usually referred to as "indirect" and "induced" economic impacts*
>
> *Because seaports are part of the basic infrastructure of the U.S. market system and affect the activities of so many industries, there are more long-term economic impacts than those associated with seaport purchases and sales. These can be identified with the incremental pricing and investment decisions of those who plan and manage seaport development and the response of U.S. and foreign industries and markets to them. Over the long-term, the availability and cost of seaport facilities and services and their geographic distribution affect the cost of imported goods used by U.S. industry and the ability of U.S. exporters to compete in foreign markets. Industries respond to changes in the availability of seaport services by modifying their location, production and investment decisions which change regional labor and product markets and affect the distribution of jobs and incomes in California. These secondary effects have subtle impacts on the demographic characteristics of the California population.*
>
> *The short-term impacts associated with purchases by seaports and seaport related industries can be traced through the economy and discussed in terms of output, income or employment. The long term impacts associated with seaport pricing and investment decisions are more difficult to assess because they depend on responses by U.S. and foreign industries and markets which are difficult to forecast."*

The paper was written from the perspective of the cargo handling seaport, and considered the economic impacts from seaport related industries that provide jobs and income (such as ship repair or Port and Government Maritime administration), as well as those activities that are directly related to cargo throughput (such as stevedoring and trucking, etc.). MARAD reports economic impact data for the U.S. Port Industry from a similar perspective. We recognize that total seaport economic impacts should properly include recreational boating and commercial fishing activities, along with cargo handling. Table 2 supplements the MARAD data with data for the recreational boating and commercial fishing industries to arrive at an estimate of the total economic impact for all California Ports and Harbors.

3 In addition to the economic impacts associated with the Seaport activities described above, there are benefits attributable to the following activities that are of vital interest to our national security, but have not been included, perhaps because the impacts are difficult to quantify:

Coast Guard Search and Rescue
Coast Guard Law Enforcement
Navy Homeporting
Joint Forces Logistics Support through Naval Supply Centers

4 The total direct and indirect/induced economic impacts of California Seaports is 250 Thousand jobs and $15 billion added to the national output of the U.S. economy in 1993. This does not include the impacts associated with port cargo users or port capital expenditures. When these additional impacts are included as in the results reported by the CMANC respondents, the total impacts appear to increase by a factor of at least 5. With respect to cargo handling, California Seaports are a major import-export link between Pacific Rim countries and the Central and Eastern U.S., accounting for about 55% of all

cargo passing through U S West Coast ports Nearly 45% of the cargo that passes through California Seaports is intermodal traffic, most of which originates or is destined outside the state, suggesting that a substantial share of the port user benefits would also occur outside of the State

5 Federal Operation and Maintenance (O&M) expenses for California Seaports have averaged approximately $25 million annually over the last several years Combining this figure with the conservative estimates of total impacts to the U S economy given in Table 2, we find

O&M Cost Per Job	-	$99
O&M Cost Per $ Million GDP	-	$1670
O&M Cost Per $ Million Federal Taxes	-	$23200

These indicators demonstrate that participation in Seaport O&M is a very cost-effective program for the Federal government

6 Federal O&M expenses in harbors proposed for termination of Federal responsibility have averaged 7 8 million annually during the same period Although these harbors do not account for cargo throughput, they do contribute a substantial share of the total economic impacts due to commercial fishing and recreational boating activities See Table 3 The corresponding costs are estimated

O&M Cost Per Job	-	$66
O&M Cost Per $ Million GDP	-	$1,160

Clearly, participation in Seaport O&M is still very cost-effective in those harbors proposed for termination of Federal responsibility.

7 In the event that Federal Maintenance is terminated and alternative funding is not immediately found to perform the necessary maintenance, Port and Harbor infrastructure will begin to deteriorate and the long term impacts associated with such Seaport Investment Decisions noted in the preceding Sea Grant excerpt will begin to be felt Although these are difficult to forecast, they will surely have a negative impact on regional, as well as national economic output. For those harbors that are currently proposed for termination of Federal maintenance, CMANC's survey indicates that the majority of seaport activity would cease The facilities and services provided by many of these seaports could not be replaced elsewhere; they provide harbors of refuge, support U S Coast Guard operations, and support local resource based industries, such as fishing, tourism or offshore oil production The economic dislocation, especially in the smaller harbors with limited options for economic development, could be severe and could ultimately require Federal economic assistance that will be far less cost effective

8 Based on Consideration of Federal taxes alone, the Federal government is risking the loss of a substantial share of the 1 0 billion in revenue it receives from the activities related to the California SeaPort Industry in order to realize a savings of $7.8 million

Table 1. Estimated Economic Impact of Nine California Ports on the State Economy

				Total Direct and Indirect Annual Economic Impact	
Revenue Tonnage (millions)	Gross Revenues (millions)	Operating Expenses (millions)	Capital Outlay (millions)	Employment Impact (jobs)	National Output (GDP) (millions)
191.4	$ 440.8	$ 199.4	$ 580.4	1,031,479	$ 86,700

Source
Nine responses to CMANC questionnaire received as of January 19, 1996.
Impacts include port cargo users and port capital expenditures.

Table 2. Estimated Economic Impact of All California Ports on the State and U.S. Economy

	State Total Direct and Indirect Economic Impact		
	Employment Impact (jobs)	National Output (GDP) (millions)	State/local Tax Impact (millions)
1993 MARAD Economic Impact Model Total Direct and Indirect Impact of California Ports (1)	87,416	$ 4,578	$ 380
Commercial Fishing (2)	20,820	$ 2,800	n.d
Recreational Boating (3)	118,729	$ 6,731	$ 191
Total	226,965	14,109	$ 571

	U.S. Total Direct and Indirect Economic Impact		
	Employment Impact (jobs)	National Output (GDP) (millions)	Federal Tax Impact (millions)
1993 MARAD Economic Impact Model Total Direct and Indirect Impact of California Ports (1)	112,218	$ 5,471	$ 1,078
Commercial Fishing (2)	20,820	$ 2,800	n.d
Recreational Boating (3)	118,729	$ 6,731	n.d
Total	251,767	15,002	1,078

Sources

(1) U.S. Maritime Administration, special run of MARAD I-O Model, Feb 6, 1996
Includes all activities and impacts associated with the movement of foreign and domestic waterborne cargoes. Excludes port cargo users and port capital expenditures.

(2) Bruce McWilliams and George Goldman, Commercial and Recreational Fishing in California, Dept. of Agriculture and Resource Economics, University of California, October, 1994

(3) Economic Impact of the Boating Industry in California, prepared for the California Dept. of Boating and Waterways, David M. Dornbusch and Company, April, 1988

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Table 3. Estimated Economic Impact of Harbors Proposed for Termination of Federal Maintanance

	Avg Cost in thous. Annual O&M 1990-96	Affected Economic Activity (1) Marina Berths	Mourings	Other Affected Businesses
Berkeley Marina	$ -	970		Boatyard, supplies, sportfishing, rentals, charters
Bodega Bay Harbor	$ 137	431		Boatyard, supplies, sportfishing, rentals, charters
Dana Point Harbor	$ -	2,419		Boatyard, supplies, sportfishing, rentals, charters
Fisherman's Wharf	$ 46	180		Commercial fishing center
Larkspur Ferry	$ -			Commuter ferry
Los Angeles River Estuary	$ 503	900		Boatyards
Marina Del Rey	$ 985	5,100		Boatyard, supplies, sportfishing, rentals, charters
Monterey Harbor	$ 195	487		Commercial fishing center, boatyard, supplies
Newport Bay Harbor	$ 204	431		Boatyards, sportfishing, charters, dealers
Noyo River & Harbor	$ 253		275	Commercial fishing center
Oceanside Sand Bypass	$ 1,869			Public beaches
Oceanside Harbor	$ 661	980		Boatyard
Petaluma River	$ 780	921		Boatyard
Pillar Point Harbor	$ -	400		Commercial fishing center
Redondo Beach (King Harbor)	$ 248	1,441		Boatyards, charters
Sacramento River Shallow Chn	$ 130	735		Boatyards, charters
San Diego River-Mission Bay	$ 59	341		Boatyard, charters, chandlery
San Leandro Marina	$ 193	455		Boatyard
San Rafael Creek	$ 228	725		Boatyards, supplies
Santa Barbara Harbor	$ 1,307	1,037		Boatyard, supplies, sportfishing, rentals, charters
Santa Cruz Harbor	$ 7	980		Boatyard, supplies, sportfishing, rentals, charters
Total	$ 7,805	19,463	275	

Notes

(1) California Boating Facilities Inventory and Demand Study, Edgar Rust and Michael Potepan, prepared for the California Dept. of Boating and Waterways, 1995

(2) Economic Impact of the California Boating Industry, prepared for the California Dept. of Boating and Waterways, David M. Dornbusch & Co., 1988. Pro-rated by share of state total marina berths and moorings.

PREPARED STATEMENT OF JOHN MCTAGGART, MEMBER CITY COUNCIL, CITY OF RANCHO PALOS VERDES, CA

Mr. Chairman and Members of the distinguished Subcommittee, the people of Rancho Palos Verdes thank you for your support in the past and again request your support of the Corps of Engineers Feasibility Study of our shoreline erosion and environmental mitigation study. The study is approximately 70% complete and needs to have the federal match included in the 1997 budget in order to finish this work we began 11 years ago. Our mitigation will prove to be an economic benefit to any port that needs offsight mitigation in the form of an economic infusion into the U.S. economy.

Our City is a partner with the Corps and has extended its available resources about as far as we can afford.

Again, we thank the Subcommittee for it's support and request that the $300K be included in the Bill.

PREPARED STATEMENT OF ELLEN CORBETT, MAYOR, CITY OF SAN LEANDRO, CA

Good morning Mr. Chairman and members of the Subcommittee. Thank you for the opportunity to testify before you today regarding the San Leandro Marina Channel and the Fiscal Year 1997 Energy and Water Appropriation. I am Ellen Corbett, Mayor of the City of San Leandro. I want to speak to you today regarding San Leandro's request for funding for maintenance dredging of the San Leandro Marina Channel in 1997. The Fact Sheet attached to my testimony provides some additional background material supplementing my remarks to you today.

San Leandro is located south east of San Francisco in the San Francisco Bay region and is home to approximately 70,000 people. A key feature of the City's geography is the 4.5 miles of San Francisco Bay shoreline that the City owns and which provides a number of environmental and natural resource activities to the citizens of San Leandro and the entire eastern region of the San Francisco Bay Area. At present, the shoreline--known as the Shoreline Recreation Area--includes a 455 berth marina, three restaurants, a hotel, a small boat sailing lagoon, two golf courses and extensive park facilities, including the City's portion of the San Francisco Bay Trail, which when completed, will encircle the entire San Francisco Bay.

While the Shoreline Recreation Area provides many different recreation opportunities, it is the Marina and the Small Craft Harbor that is the engine behind much of the recreational and economic activity within the Area. The Marina provides berthing for hundreds of small crafts which use the Marina Channel to access the deep waters of the San Francisco Bay. Because of the unique location of the Small Craft Harbor, it, along with the Marina and the Channel to the Bay, is utilized by citizens from throughout the Bay Area. It is estimated that $8 million is generated annually within the Shoreline Recreation Area. We are also currently working on additional economic development in this area, some of which will assist on future dredging maintenance funding activities.

The 1997 dredging event is anticipated to generate approximately 200,000 cubic yards of dredged material which the City will transfer to the City's Dredged Material Management Site (DMMS), the only land based sediment holding site in the region. Disposal of the sediments on land both removes harmful heavy metals from the Bay and, because of the environmentally conscious way the Site is managed, provides a habitat for shorebirds during the years between dredging cycles and contributes to the City's Marshlands Restoration project which has restored approximately 400 acres of wetlands.

In addition to the recreation and economic benefits that are linked to the San Leandro Marina, Small Craft Harbor and Channel, they satisfy other needs. For example, the Nine Bay Area County Regional Transportation Network has designated the Marina and the Small Craft Harbor as a potential secondary ferry location that could be utilized to transport goods and people to critical points such as airports and hospitals should a highway or other transportation arteries become inaccessible. Also, the U.S. Coast Guard has incorporated the Marina and Small Craft Harbor to remain vital components of these regional and disaster preparedness activities.

The City and the Army Corps of Engineers have shared on an equal basis both the responsibilities and costs associated with dredging the San Leandro Marina Channel. The Corps has traditionally undertaken the actual dredging of Marina Channel while the City handles the drying and disposal activities. This collaborative approach has been successfully employed for nearly 25 years. Next year will be no exception. Indeed, the City has budgeted $1.5 million for the costs of drying the dredged materials and its disposal upland. With the costs of dredging the San Leandro Marina Channel in 1997 estimated at $1.5 million, the local-Federal ratio represents a 100% match by the City.

Access to the San Francisco Bay is an integral component of the San Leandro Marina and Small Craft Harbor and, therefore, to the success of the entire Shoreline Recreation Area. The Marina and Harbor contribute significantly to economic development in the City and the region, to environmental quality in the Bay and the City's Marshalnds Restoration project, and to regional emergency preparedness needs. As such, Congressman Pete Stark, Senator Dianne Feinstein and Senator Barbara Boxer strongly support the dredging of the Marina Channel and have written to the Administration to urge that funding for the project be included in the President's FY97 Budget. We also appreciate the strong support of the California Marine Affairs and Navigation Conference (CMANC).

On behalf of the citizens of San Leandro and those from throughout the Bay Area, I hope that this Subcommittee will look favorably upon our request for maintenance dredging assistance. Thank you for your time and consideration and I would be pleased to answer any questions members of the Subcommittee may have.

PREPARED STATEMENT OF ROY CURLESS, COMMISSIONER, PRESIDENT, HUMBOLDT BAY HARBOR, RECREATION, AND CONSERVATION DISTRICT

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU.

I AM COMMISSIONER ROY CURLESS, PRESIDENT OF THE HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT, AND I AM HERE REPRESENTING ITS GOVERNING BODY OF ELECTED COMMISSIONERS.

THE COMMISSION HEREIN EXPRESSES ITS APPRECIATION TO SENATORS BARBARA BOXER AND DIANNE FEINSTEIN AND TO YOU, MR. CHAIRMAN, AND THE OTHER MEMBERS OF THIS SUBCOMMITTEE AND STAFF, FOR THEIR CONTINUING EFFORTS IN FUNDING THE DEEPENING NAVIGATION PROJECT OF CRITICAL IMPORTANCE NOT ONLY FOR FUTURE DEVELOPMENT BUT FOR THE SAFETY OF HUMBOLDT BAY AND ITS USERS. IN PARTICULAR, MR. CHAIRMAN, THE COMMISSIONERS OF HUMBOLDT BAY VALUE YOUR EFFORTS TO MOVE THE PROJECT THROUGH THE ADMINISTRATIVE REVIEW PROCESS.

THE COMMISSION IS GRATIFIED THAT THE CHIEF OF ENGINEERS, IN OCTOBER OF 1995, APPROVED THE NAVIGATION IMPROVEMENT PROJECT FOR HUMBOLDT BAY AND HARBOR. I UNDERSTAND THE CHIEF'S REPORT IS AWAITING TRANSMITTAL TO CONGRESS AND THE OFFICE OF MANAGEMENT AND BUDGET (OMB) HAS RECEIVED A BRIEFING ON THE PROJECT BY THE CORPS.

A $3 MILLION APPROPRIATION FOR FY97 WOULD ENABLE THE CORPS TO INITIATE CONSTRUCTION. THE PRELIMINARY ENGINEERING AND DESIGN WORK STARTED IN 1995.

THE HUMBOLDT BAY AND HARBOR DEEPENING PROJECT IS A KEYSTONE IN THE OVERALL HUMBOLDT BAY ENHANCEMENT PLAN. THIS PLAN IS CONCEIVED TO DIVERSIFY THE ECONOMY, FROM HISTORICALLY A RESOURCE TIMBER ECONOMY AND TO CREATE SAFER HARBOR OPERATIONS IN ONE OF THE MOST VALUABLE ESTUARINE HARBORS. PORT DEVELOPMENT IS IMPORTANT TO HUMBOLDT BAY HARBOR DISTRICT AND THE SURROUNDING REGION BECAUSE OF THE POTENTIAL FOR JOB GROWTH. THE UNEMPLOYMENT

RATE IN HUMBOLDT COUNTY IS 9.1% AND AS HIGH AS 18% IN ONE OF THE NEIGHBORING COUNTIES.

THE HARBOR COMMISSION IS WORKING IN COOPERATION WITH HUMBOLDT COUNTY, THE CITY OF EUREKA, AND THE NORTH COAST RAILROAD AUTHORITY BUT NEEDS FEDERAL CONTRIBUTION AS THE KEYSTONE IN ORDER TO MEET ITS FINANCIAL COMMITMENTS. THE COMMISSION, AS LOCAL SPONSOR, HAS COMMENCED THE FORMATION OF A HUMBOLDT BAY HARBOR IMPROVEMENT DISTRICT, WHICH WILL ALLOW US TO PROCEED SIDE BY SIDE WITH THE FEDERAL GOVERNMENT.

THANK YOU FOR THIS OPPORTUNITY TO REQUEST SUPPORT FOR THE HUMBOLDT BAY AND HARBOR DEEPENING PROJECT AS PART OF THE FISCAL YEAR 1997 ENERGY AND WATER REGULAR APPROPRIATIONS. WE LOOK FORWARD TO APPEARING BEFORE YOU IN THE FUTURE AND PROVIDING PROGRESS REPORTS ON THIS CRITICAL PROJECT.

PREPARED STATEMENT OF CATHY NOVAK, MAYOR PRO TEM, MORRO BAY, CA

Mr. Chairman,

Over 120 years ago local mariners and others requested the assistance of the Federal Government to solve the treacherous navigational problems at the Morro Bay harbor entrance. Congress, at that time, authorized the Army Corps of Engineers to investigate our problem. It was not until 1942 when the US Navy requested assistance that any improvements were made. When the war ended, the Corps of Engineers retained the responsibility to maintain the harbor.

Many ebb and floods have happened since that time. However, I am here today to proudly say that because of your past appropriations we are near completion of our harbor entrance improvement project.

Mr. Chairman, not only is Morro Bay the only all weather commercial and smal craft harbor in a 200 mile stretch of the California Coast but, this harbor provides approximately 700 jobs and 53.5 million dollars annually to the economy.

Therefore, the City Council respectfully asks the Subcommittee to appropriate $300,000 for engineering and design in FY97 in preparation for maintenance dredging in FY98. Now that we have this valuable project done, I would like all of us to strive to maintain it.

Finally, as Mayor Pro Tem of Morro Bay, President of the Morro Bay Commercial Fisherman's Organization, and Vice Chairman of the California Seafood Council, I again thank the Congress for its support of the Corps' work at Morro Bay. I also urge your continued Congressional support of the West Coast commercial fishing industry that is so vital to Morro Bay.

ANALYSIS OF ECONOMIC BENEFITS OF DREDGING MORRO BAY HARBOR

EXECUTIVE SUMMARY

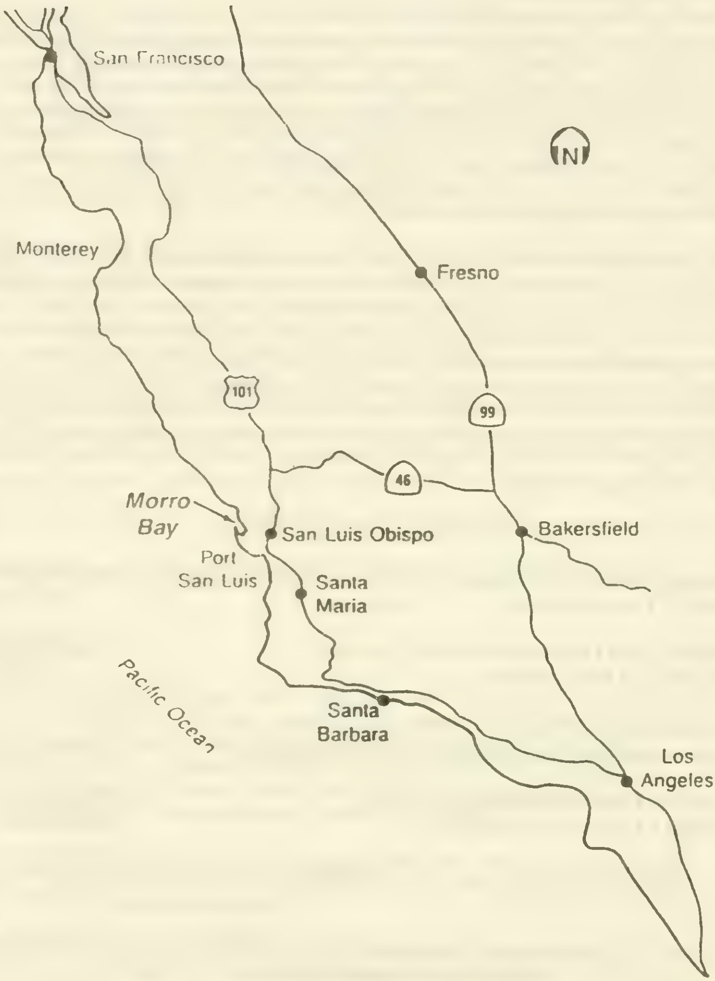
Morro Bay Harbor navigational improvements were initially constructed as an emergency naval base during World War II. In FY 1995-96 the Army Corps of Engineers (ACOE) completed construction of the Morro Bay Harbor Entrance Improvement Project to enhance commerce, fisheries and navigational safety on the Pacific coast. Since World War II the ACOE has constructed and maintained the navigational features in Morro Bay harbor. Recently, the ACOE has proposed policies that would limit federal maintenance dredging efforts in recreational harbors. This report concludes that Morro Bay harbor is a small commercial harbor with significant local and national economic importance and analyzes the benefits of continued federal maintenance dredging in Morro Bay harbor.

Morro Bay Harbor supports approximately 250 home ported commercial fishing vessels and related marine dependent businesses; the Chevron Estero Bay Marine Terminal, the PG&E Morro Bay power plant, and a thriving tourism industry based on port activities. Due to the fact the harbor has very little recreational harbor facilities to generate revenues, there is no local sponsor to assist with dredging costs should the federal government cease or reduce maintenance dredging support. All of the above uses would be reduced or eliminated without federal dredging support. In addition, in 1995 Morro Bay was incorporated into the National Estuary Program. While studies are underway, it now appears that dredging of navigational channels enhances tidal dynamics and promotes restoration of estuary resources. This benefit cannot be quantified in economic terms at this time.

Following is a summary of economic benefits from dredging:

DIRECT PRODUCTION AND PAYROLL ANNUAL VALUE:	**$53.5 MILLION**
DIRECT EMPLOYMENT:	**711 JOBS**
INDIRECT SALES AND SERVICES VALUE:	**$32 MILLION**
INDIRECT EMPLOYMENT:	**250 JOBS**
SHIPPING/CARGO SERVICES VALUE	
Chevron Estero Bay Marine Terminal crude oil through put:	**$500 MILLION**
ANNUAL FEDERAL DREDGING COST:	**$ 1,200,000**
ANNUAL ECONOMIC BENEFITS:	**$53,500,000**

EACH FEDERAL DOLLAR INVESTED IN DREDING MORRO BAY HARBOR RETURNS 45 TIMES IN ECONOMIC BENEFIT



MORRO BAY HARBOR
VICINITY MAP

PREPARED STATEMENT OF DONALD SHERER, BOARD OF HARBOR COMMISSIONERS, SAN MATEO COUNTY HARBOR DISTRICT, CA

Good Morning

Thank you very much for giving me the opportunity to testify before you today on what has become a pivotal issue for the U.S. Government, and its relationship to the States

Historically, the federal government has had an interest in the creation and maintenance of small vessel commercial harbors on the coast. The various harbors have served coastwise shipping, the offshore oil industry, fisheries and a myriad of other users over the years. The revenues derived from these smaller harbors have contributed greatly to the local communities, states and the Federal government through the taxes imposed on wages, sales, imports, etc. Although I don't have the figures in front of me I am sure that the cost/benefit ratio over time, beginning with the creation of most of the individual ports has been well in excess of the current guidelines to warrant federal involvement

The Corps of Engineers has been conducting a RECON study of the Pillar Point Harbor over the past two years. Numerous visits have been made to the harbor to view the breakwater, the beach areas, the marsh area and intertidal habitat, and of course, the commercial facilities of the harbor. Thousands of hours of combined staff time have been devoted to providing assistance to the Corps personnel in conducting their study. We have been told that the Corps has, in fact, determined that they have a continued interest in the harbor; that they are interested in creating a federal project channel from the Pillar Point lighted entrance buoy, through the breakwater entrance, and to the Romeo Pier, and that the cost benefit ratio required by law, is there. We, the San Mateo County Harbor District applaud the Corps of Engineers in making this determination, because truly, there should be a federal interest in the harbor

To date, the RECON study for Pillar Point Harbor has cost the Corps of Engineers - read that as taxpayer - you and I, approximately $346,000. The appropriated amount for this study was to be $385,000 and closure cost will probably eat up the balance of $39,000

The estimated cost for Step 2 of the process, the Feasibility Study, will cost approximately $720,000 of which the San Mateo County Harbor District will be required to pay $360,000, or 50%. We have been told that we can pay a portion of this "in kind", however I don't believe the District could provide enough "in kind" staff time, studies, or even smoked salmon to make a dent in the required $360,000 contribution. On completion of the Feasibility Study the total cost to the Corps will have been approximately $745,000 and the cost to the San Mateo County Harbor District will have been $360,000 - A total of approximately $1,105,000.

Step 3 of the process - the actual dredging - will cost approximately $820,000. Of this, the Corps - once again, read as taxpayer, you and I - will be responsible for 80%, or $656,000. The San Mateo County Harbor District will pay the remaining 20%, or $164,000.

The total cost of this project will have cost a total of $1,925,000 of which only $820,000 or 43% will be for actual construction. The remaining 57% will have gone to studies and other costs associated with project development. In that approximately 43,000 cubic yards of material will be moved this amounts to approximately $44.76 per yard of material. Of this, the San Mateo County Harbor District will have paid $12.19 per yard.

Sirs, we sincerely believe that the U.S. government does have a continuing interest in the interstate industry of Pillar Point Harbor, and hence, the harbor itself. Likewise, we believe that the U.S. Government should have a continuing interest in similar harbors, not only in California, but up and down the coasts of the U.S. We, the smaller harbors do not mind paying our fair share of costs, however, congress and the Corps, itself must find ways to make the smaller projects cost less to the local sponsors. Several in the San Francisco office of the Corps of Engineers have suggested that provisions could be made to proceed directly from the RECON Study to the construction stage for the smaller projects such as ours. If this could be formalized, you and I as taxpayers and representatives of all U.S. citizens, would be further ahead.

In closing, we, the San Mateo County Harbor District, representing all of the citizens of San Mateo County, California, support the funding proposal for the Corps of Engineers for fiscal year 1997 and encourage the Corps of Engineers to continue to investigate ways to better make the available dollars go further.

Thank you for your time, and best wishes from people of San Mateo County.

PREPARED STATEMENT OF BETTY STONE, BOARD OF HARBOR COMMISSIONERS, SAN MATEO COUNTY HARBOR DISTRICT, CA

Good Morning

It's a real pleasure to be here today to give testimony before congress. The money that you appropriated last year for continuation of the Pillar Point Harbor RECON Study has been well used. At each stage of the study not only did our staff contribute their time and efforts to assist the Corps with its research, but we also involved the local community. We put Corps personnel in direct contact with local historians, authors, bird-watchers, environmentalists, naturalists, fishermen, yachtsmen, kyakers, windsurfers - anyone who was a user of the harbor was invited and encouraged to offer input. I can truthfully say that the RECON Study done by the Corps was complete and that the cost benefit ratio is real.

Historically, the smaller harbors have been the lifeblood of the nation. Over time, many of the harbors have become primarily recreational harbors, however, this was not always the case. During the early years of the U.S. when our clipper ships were the greyhounds of the sea and we were a true maritime power the busiest port in the nation, as measured by import duties, was not New York or Boston, but Wiscasset, Maine. In terms of total number of vessels and density of traffic, one of the busiest commercial port areas today is not Long Beach or Oakland, but the Miami River. The entire Caribbean basin is serviced by the small, coastal and intercoastal vessels, all of which contribute to the economy of southern Florida and the U.S.

I am not here today to testify about other areas, although we all know that the federal pie is getting harder and harder to divide, and each section of the country and each segment of society deserves its fair piece. I am here to talk about the federal interest in the small craft harbors of California, and in particular Pillar Point Harbor.

The sport salmon season has just started. At the present time our harbor is operating at over 100% of capacity. When the commercial fishing vessels arrive from Oregon, Washington, Alaska and Southern California for their salmon season boats will be rafted side-to-side, utilizing all available water space.

Last year our testimony emphasized the interstate importance of Pillar Point Harbor to the nation as a whole. This argument continues to be valid. In addition, should the small craft commercial harbors be forced to close down or restrict their operations because of lack of water depth, the thousands of commercial fishing vessels, offshore supply vessels, and other users would be forced to use the harbors and waters presently shared by large tankers, container ships and bulk carriers. The continued safety of commerce and the environment require that vessels not be congested unnecessarily. As the world becomes smaller, the importance of the second tier, small craft commercial harbors becomes more important.

Thank you for your time and attention. If you have any questions please give us a call. I invite each of you to come out to Pillar Point Harbor and see first-hand the importance of the local and interstate, commercial fishing industry to California and to the U.S.

LETTER FROM DICK LYON, PRESIDENT, OCEANSIDE HARBOR DISTRICT, OCEANSIDE, CA

Dear Chairman Domenici and Members of the Subcommittee:

The Oceanside Harbor District requests your support of $800,000 in the fiscal year 1997 budget for the Oceanside Harbor Maintenance Dredging Program and Engineering and Design for Fiscal Year 1998 Dredging. The Maintenance Dredging Program is necessary for the safe navigation into Oceanside Harbor and the U.S. Marine Corps Base Camp Pendleton Harbor. The program will additionally provide beach sand restoration, shoreline protection and associated recreational benefits.

Thank you for your continued support of all our projects.

PREPARED STATEMENT OF E.D. ALLEN, CHIEF HARBOR ENGINEER, PORT OF LONG BEACH

I am E. D Allen, Chief Harbor Engineer for the Port of Long Beach, California. I have been authorized by the Board of Harbor Commissioners of the City of Long Beach to represent the Port of Long Beach in regard to appropriations for the Los Angeles and Long Beach Harbors Model Study; Planning, Engineering, and Design for our on-going 2020 Plan; Los Angeles River maintenance dredging; and Reconnaissance and Feasibility Studies for beach erosion.

Harbors Model Maintenance

The Water Resources Development Act of 1976, Section 123, authorized the Chief of Engineers to operate and maintain the Los Angeles-Long Beach Harbor Hydraulic Model at the U. S. Army Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi as part of the Los Angeles and Long Beach Harbors Model Study. This model encompasses both port complexes in San Pedro Bay, which, as you are aware, are ports of national significance. The hydraulic model, along with several numeric models, provides state-of-the-art methodology that can be used on the San Pedro Bay ports and on many other harbor complexes. In addition, the Port, as the local agency, is assisting in the Corps' effort to provide continuous wave-gauge data by providing necessary support personnel and equipment for the maintenance of portions of the system located at the Port.

In fiscal year 1996, $156,000 was appropriated for maintenance of the physical model of San Pedro Bay. During this time, the Port also utilized the model to analyze necessary navigation-related modifications to the recently completed portion of our expansion plan, as well as our upcoming expansion within the Navy Basin. This effort is being funded by the Port and is currently on-going. It is necessary that the model remain ready for service such as this. Funding in fiscal year 1997, in the amount of $160,000, would continue annual maintenance on the model. Additionally, we are requesting $340,000 of continued funding for the wave gage (prototype) data acquisition and analysis program. This program began in 1987 to develop data for the design of the 2020 Plan port expansion and navigation improvements. This program has now evolved to construction monitoring and model verification which needs to continue in order to confirm expected levels of impacts of the expansion plans. Therefore, Congress is respectfully requested to appropriate **$500,000** for fiscal year 1997 to perform this work.

2020 Plan - Channel Dredging (Planning, Engineering, and Design)

The Port of Long Beach has developed a long-range master plan, referred to as the 2020 Plan, which demonstrates the need for new navigation channels and additional landfill development through the year 2020. In fiscal year 1995 $1,500,000 was appropriated to do a feasibility study of channel deepening outside the federal breakwater.

Section 201(b) of the Water Resources Development Act of 1986 authorized construction of the 2020 Plan upon recommendations of a feasibility report and completion of a favorable Chief of Engineers Report.

The Port of Long Beach has started the first phase of the 2020 Plan with the construction of its Pier J expansion project, which includes dredging the Long Beach Main Channel to at least a -76' depth. Together with the approach channel deepening outside the federal breakwater, the dredging was evaluated for Federal interest in the feasibility study because it permits deeper draft crude petroleum vessels to call at the Port of Long Beach.

The feasibility study for completion of the Long Beach portion of the 2020 Plan was completed in September 1995. Completion of the Planning, Engineering, and Design (PED) Phase has been funded and is scheduled for December 1996. It is urged that the Committee approve an appropriation of **$17,000,000** to fund the construction phase of the Long Beach portion of the 2020 Plan beginning in fiscal year 1997. This will allow construction to follow right behind the design process with no gap in funding.

Los Angeles River Maintenance Dredging

The Port of Long Beach also concurs with and supports the recommendation of C-MANC and the City of Long Beach with respect to federal funding for remedial maintenance dredging to remove accumulated flood-deposited silt in the mouth of the Los Angeles River. During the storms of 1995, such flood-deposited silt closed the mouth of the Los Angeles River to navigation. This restricted regularly scheduled water route transportation between the cities of Long Beach and Avalon, creating an economic emergency. Reacting to this emergency, the U. S. Army Corps of Engineers cleared the channel enough to allow for minimal resumption of navigation.

However, substantial quantities of silt remain in the channel, much of which is just upstream of the recently reopened section. These silt deposits create the likelihood of future serious restrictions and safety hazards to commercial and recreational boating activity in, and adjacent to, the Long Beach Harbor District and the associated businesses in Long Beach. Such restrictions and hazards have resulted in accidents and litigation.

In addition, the Port supports the City in recommending that these silt deposits be removed on an annual basis as a scheduled work item. As previously demonstrated, the location of the silt can move dramatically within a few days. In "Project Plan for Los Angeles River Estuary Maintenance Dredging, Long Beach, CA, October 1994" (Project Plan-1994), the Corps of Engineers estimated an average annual deposit of silt in the estuary of 485,000 cubic yards. The rate of such deposits is influenced by operational decisions at the Corps of Engineers' dams located at the headwaters of the river. It is imperative, for our current operations, that a long range remedy be found for the Los Angeles River mouth, if navigational utility and effective flood control capability is to be maintained.

Although the Projects Plan-1994 cites a memorandum indicating sufficient capacity to effectively accommodate flood waters when released from Sepulveda and Hansen Dams, we are concerned as to how that capacity is maintained over time, given the annual level of silt deposition. The flood flow is also accompanied by a velocity and volume of the river, through the portions of the river historically dredged by the Corps, that has caused the loss of, or damage to, navigational buoys, marina mooring facilities, dredging equipment, and the waterway usage by various commercial and recreational vessels. The most recent deposits, despite the emergency channel clearance, have resulted in extensive shoaling that still hinders navigational utility in the area.

It is estimated by the Corps of Engineers, in Project Plan-1994, that maintenance dredging of the channel to a minimum usable width, a project that does not clear all shoaling that hinders navigation, is $1,900,000. This is a level of dredging that allows for an annual accumulation of almost 175,000 cubic yards of silt deposits beyond what is being dredged and allows for the uncertainty of a rapidly developing shoal in any time of significant storms. An annual expenditure of $5,700,000 would be necessary to clear all annual silt deposits and prevent an accumulation of that material. Congress is requested, therefore, to appropriate **$5,700,000** for the accomplishment of this critically needed work.

Reconnaissance/Feasibility Study - Beach Erosion

The Port of Long Beach also supports C-MANC and the City of Long Beach on their request for federal funding to complete a Corps of Engineers reconnaissance study on beach erosion. In southeastern Long Beach, east of the Port's land and channels, and directly opposite the federal breakwater, a beach and seawall protects approximately $200,000,000 worth of homes. Steady erosion had reduced the beach from an optimum of 175 feet to 30 feet prior to City's efforts in late 1994 to rebuild the beach. Winter storms continue to reduce the beach width.

Recently, the City has also experienced erosion in the west beach area. Although homes are not endangered, public improvements, including lifeguard stations, public restrooms, a bicycle and pedestrian trail, and a parking lot, are at risk. The cause of the new problem is unclear, indicating the need for a thorough study of the beach erosion problem inside the federal breakwater.

The primary method of protecting the homes has been annual rebuilding, with the building of sand berms during high tides or expected storms. In the past 14 years, the City has invested over $5,000,000 in capital improvement projects, annual beach rebuilding, and storm protection to control the beach erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall, causing damage to homes. In fiscal year 1996, $195,000 was budgeted to rebuild eroded beaches. The City is also defending itself against a lawsuit by one of the homeowners who is claiming that the City failed to halt erosion that narrowed the beaches in front of his home to less than the desired width adopted in the 1980 Local Coastal Plan.

It is requested, therefore, that Congress appropriate **$300,000** to complete the reconnaissance study of the beach erosion problem within the City of Long Beach and initiate the feasibility study. This beach erosion problem is directly related to the focusing affect the federal breakwater has on our large commercial harbor complex and surrounding beaches.

Attached hereto is Resolution No. HD-1801, adopted by the Board of Harbor Commissioners of the City of Long Beach on February 20, 1996, which contains data relating to the background of the Los Angeles and Long Beach Harbors Model Study, the 2020 Plan implementation, the Los Angeles River dredging, the beach erosion problem in Long Beach, and other related navigation and economic matters. The resolution stresses the need for federal assistance in developing economic, technical and environmental background information essential to the design and permitting of Port facilities vital to regional and national interests. **The Port of Long Beach is the largest container port in the United States and is the economic engine driving $3.5 billion in customs receipts from both Los Angeles and Long Beach ports and jobs for 500,000 people. We are truly a port and harbor of national significance.**

We kindly ask that Congress continue its support of these projects in fiscal year 1997 by appropriating the requested funds.

Thank you for permitting me the privilege of this presentation.

RESOLUTION NO. HD- 1801

A RESOLUTION OF THE BOARD OF HARBOR COMMISSIONERS OF THE CITY OF LONG BEACH, CALIFORNIA, REQUESTING THE CONGRESS OF THE UNITED STATES TO APPROPRIATE FUNDS TO THE UNITED STATES ARMY CORPS OF ENGINEERS IN ORDER TO CONTINUE PLANNING, ENGINEERING AND DESIGN FOR THE SAN PEDRO BAY 2020 PLAN, TO CONTINUE THE LOS ANGELES AND LONG BEACH HARBORS MODEL STUDY RELATING TO IMPROVEMENTS IN SAN PEDRO BAY, TO CONDUCT MAINTENANCE DREDGING AT THE MOUTH OF THE LOS ANGELES RIVER AND TO CONDUCT RECONNAISSANCE AND FEASIBILITY STUDIES OF BEACH EROSION

WHEREAS, the Ports of Long Beach and Los Angeles in San Pedro Bay, California, are two of a limited number of sites on the West Coast of the United States which possess the potential for deep water port facilities as recommended in the West Coast Deep Water Port Facility Study conducted by the United States Army Corps of Engineers; and

WHEREAS, the Ports of Long Beach and Los Angeles have a record of both physical and fiscal growth to the extent that together the two are presently handling over 164.4 million metric revenue tons of cargo annually (fiscal year 1995), and the international cargo handled is valued at over 145 billion dollars annually (calendar year 1994); and

WHEREAS, the growth and activity of the Ports of Long Beach and Los Angeles have a significant regional and national economic effect; and

WHEREAS, in excess of 3.5 billion dollars in federal revenues were collected as United States Customs duties on foreign imports passing through the Ports of Long Beach and Los Angeles during the fiscal year ending September 30, 1994; and

WHEREAS, both Ports are now, and are increasingly becoming, hard-pressed to provide facilities to meet the needs of the shipping industry, and to that end are conducting extensive studies, in conjunction with federal studies, to determine navigational, transportation, and environmental requirements necessary to provide economic and adequate surge-free berthing and cargo handling facilities; and

WHEREAS, all existing land in the Port of Long Beach which can be developed for shipping operations has been utilized or is in the process of being developed and, in order to meet the needs of the following decade, the design, permitting and construction of new lands must continue; and

WHEREAS, continuation of the studies currently underway by the United States Army Corps of Engineers, consisting of the Los Angeles and Long Beach Harbors Model Study, including maintenance and operation of the San Pedro Bay Hydraulic Model at Vicksburg, Mississippi, as authorized by Section 123 of the Water Resources Development Act of 1976, is needed for use in the design and permitting processes for future landfills for port development; and

WHEREAS, the Port of Long Beach handled over 26 million metric tons of liquid bulk cargo (fiscal year 1995). Because of economies of scale, liquid bulk cargo brought in by deeper draft vessels will have lower transportation costs. However, the existing navigation channel depths leading to the Port limit the size of calling vessels; and

WHEREAS, One Million Five Hundred Thousand Dollars ($1,500,000) was appropriated in fiscal year 1995 for a feasibility study of channel deepening outside the federal breakwater. The feasibility study was completed in 1995. Completion of planning, engineering, and design has been funded and is scheduled for December, 1996; and

WHEREAS, the Los Angeles River is the largest of numerous flood-control channels constructed and maintained jointly by the Los Angeles County Flood Control District and the United States Army Corps of Engineers, and silt deposit from heavy storm runoff in recent years accumulating in the mouth of the Los Angeles River in the City of Long Beach constitutes a restriction and hazard to both commercial and recreational boating; and

WHEREAS, the Board of Harbor Commissioners of the City of Long Beach, as a properly constituted and financially responsible local agency, by its Resolution No. HD-890, adopted August 3, 1965, expressed its intent to enter into such agreements as may be reasonably required to further federal projects for the development and improvement of Long Beach and Los Angeles Harbors; and

WHEREAS, at southeastern Long Beach in front of Alamitos Bay a beach and seawall protects Two Hundred Million Dollars ($200,000,000) worth of homes. The primary method of protecting the homes has been annual beach rebuilding and sand berms during storms. Steady erosion has reduced the beach from optimum width of 175 feet to 30 feet and continues to reduce beach width despite rebuilding efforts in 1994. In the past 14 years, the City has invested over Five Million Dollars ($5,000,000) in capital improvement projects, annual beach rebuilding and storm protection to stop erosion. Despite this effort, in 1989 and 1993, storm waves eroded the beach and breached the protective seawall causing damage to homes.

NOW, THEREFORE, the Board of Harbor Commissioners of the City of Long Beach resolves as follows:

Section 1. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to maintain the San Pedro Bay Hydraulic Model at the Waterways Experiment Station at Vicksburg, Mississippi, as part of the Los Angeles and Long Beach Harbors Model Study.

Sec. 2. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to complete the construction phase of dredging deeper navigation channels to the Port of Long Beach.

Sec. 3. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to continue the existing wave gauge (prototype) data acquisition and analysis program.

Sec. 4. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, in conjunction with the Los Angeles County Flood Control District, to engage in the necessary maintenance dredging at the mouth of the Los Angeles River to remove silt deposits which have accumulated at that location.

Sec. 5. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army Corps of Engineers, to complete reconnaissance and feasibility studies to develop protective measures to prevent beach erosion within the City of Long Beach.

Sec. 6. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, directed to send copies of this resolution to the United States Senators and to Members of the House of Representatives from California, with a letter requesting their assistance in presenting this resolution before the proper Congressional committees.

Sec. 7. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, further directed to send copies of this resolution to the President of the United States; the Director, Office of Management and Budget; the Secretary of the Army; the Chief of Engineers, the Director, Directorate of Civil Works, the Division Engineer-South Pacific Division and the District Engineer-Los Angeles, all of the United States Army Corps of Engineers; and to such other interested persons as he may deem appropriate.

The Secretary of the Board shall certify to the passage of this resolution by the Board of Harbor Commissioners of the City of Long Beach, shall cause the same to be posted in three (3) conspicuous places in the City of Long Beach, and shall cause a certified copy of this resolution to be filed forthwith with the City Clerk of the City of Long Beach and it shall thereupon take effect.

I hereby certify that the foregoing resolution was adopted by the Board of Harbor Commissioners of the City of Long Beach at its meeting of February 20, 1996, by the following vote:

Ayes: Commissioners Hancock, Perez, Murchison,
Bellehumeur, Hearrean

Noes: Commissioners None

Absent: Commissioners None

Not Voting: Commissioners None

George Murchison
Secretary

PREPARED STATEMENT OF MARINUS W. BAAK, DIRECTOR OF ENGINEERING, SAN DIEGO UNIFIED PORT DISTRICT

Good afternoon Mr. Chairman and Members of the Subcommittee

I am Marinus W. Baak, Director of Engineering for the San Diego Unified Port District. My testimony today, on behalf of the San Diego Unified Port District and its Board of Port Commissioners, supports the request by the U.S. Army Corps of Engineers for funding to conduct a reconnaissance study The study would evaluate the Federal interest in modifications of the existing Federal navigation channel at San Diego Harbor, California Proposed modifications include dredging to deepen the channel. A deeper channel is necessary to provide safe navigation access to existing and potential new maritime facilities operated by the San Diego Unified Port District

The San Diego Unified Port District has the responsibility to manage and develop the tidelands of San Diego Bay for commercial, navigational, fishery and recreational uses. The member cities of the Port District are San Diego, National City, Chula Vista, Imperial Beach and Coronado Under the Port District's jurisdiction are over 5,275 acres of tidelands of which 2,500 acres are filled land and 403 acres are ocean front tidelands

The Port of San Diego considers itself an "economic engine" for the San Diego region. The Port District operates and maintains two marine terminals and engages in other related business and economic activities. These economic activities result in regionally significant fiscal impacts, including economic output, value added, employment and associated payroll, as well as federal, state and local taxes

An economic and fiscal impact analysis conducted in 1992 confirmed the significant contribution by the Port District to the federal and local economy. Direct and indirect fiscal and tax revenue was estimated to be $7.42 billion per year The federal portion of these fiscal and tax revenues is estimated to be 287 million ±.

To maintain and enhance its ability to contribute to the region's economic growth and viability through high wage job creation, the Port District has identified strategic initiatives One of these is the dredging of the navigation channel in San Diego Bay. This dredging is needed to maintain and enhance access to the Port District's marine terminals The Port of San Diego is becoming the port of choice for new and expanding import/export trade in motor vehicles, containers, and bulk cargoes A deeper channel is needed to accommodate deep draft vessels serving these international markets.

In addition, the Port District has initiated a number of programs to improve the land-side infrastructure These initiatives include (1) $16 million to design and construct improvements to the 10th Avenue Marine Terminal seawall, (this project has been awarded and will commence within 30 days), (2) coordination of local agencies from San Diego and Imperial Counties, long and short haul railroad companies, and representatives from federal Mexican agencies to implement refurbishment of the San Diego and Arizona Eastern railroad; and (3) negotiation with Burlington Northern-Santa Fe Railroad for a first phase, $8 million, rail improvement project at the National City Marine Terminal (subsequent phases could exceed $20 million)

In conclusion, the San Diego Unified Port District requests your support and appropriation of $300,000 in Fiscal Year 1997 for the U.S Army Corps of Engineers to initiate a reconnaissance study of modifications of the existing Federal navigation channel at San Diego Harbor. The port provides convenient access to the international import/export trade Full potential can only be achieved through land-side infrastructure improvements and dredging of the navigation channel.

PREPARED STATEMENT OF JOHN BRIDLEY, WATERFRONT DIRECTOR, CITY OF SANTA BARBARA, CA

Mr. Chairman and Members of this distinguished Subcommittee, I thank the Committee for including investigations and planning cost-shared funding for the procurement of a dredge in your bill last year. Acquisition of a dredge can start in Fiscal Year 1997. Therefore, on behalf of the City of Santa Barbara, California, I am asking for $5,790,000 to start that action.

Mr. Chairman, procurement of a dredge for Santa Barbara Harbor and local operation of annual Harbor entrance maintenance will allow this Subcommittee to delete from its bill $1,038,000 in annual O&M funding. This has been demonstrated at another California harbor where at least $9 million has been saved over the last eight years.

This new and unique localization of the operations and management mission of the Corps of Engineers will save the Federal government millions of dollars.

Thank you for the opportunity to appear before your committee.

PREPARED STATEMENT OF CHARLES W. FOSTER, EXECUTIVE DIRECTOR, PORT OF OAKLAND

I want to thank you for the opportunity of submitting written testimony in support of appropriations that are under consideration by the Senate Subcommittee on Energy & Water Development. These appropriations, to be recommended in the President's budget, and necessary to maintain the ongoing projects, will provide an estimated $8.3 million for continuing construction of the -42' Oakland Harbor Channels, and an estimated $2.6 million for annual operation and maintenance related to the Oakland harbor.

We particularly appreciate past actions that have been taken by you and the Senate committee with respect to ongoing appropriations that have now brought us to the point where actual construction of the -42'

Oakland Channel deepening commenced in mid-1995 with expected completion by November 1996.

The Oakland Harbor Channel Improvement is a federally authorized project undertaken by the U.S. Army Corps of Engineers. The project was authorized for construction by the Water Resources Development Act of 1986.

The project will deepen the channels to -42 feet, mean lower low water (MLLW), and provide additional navigational improvements. Approximately 5.6 million cubic yards of material must be dredged to provide the necessary channel improvements.

The Corps estimates the annual benefits for Project Year 1 (1997) are approximately $40 million. Average Annual Benefits (1997-2047) are approximately $144.5 million. Benefits of the project are derived from:

A. The use of larger vessels with lower operation cost and lower fuel consumption per ton of cargo carried.

B. Elimination or reduction of tidal delays.

C. Improvement in navigation vessel safety and reduction in possibility of collisions or groundings.

As the local cooperating agency for the channel improvements, the Port of Oakland is fully committed to meet its financial obligations as required under the Water Resources Development Act of 1986, with the balance of the project cost to be funded from federal appropriations.

Through strong Administration and Congressional support, with close collaboration with environmental groups, organized labor, and the local community, a three part dredge disposal plan was developed:

- Ocean disposal 55 miles offshore
- 300 acre Wetland Restoration Project using suitable dredged material
- Innovative upland disposal plan on Port property

The Port of Oakland appreciates your past support for the Sonoma Baylands wetland restoration. It allowed us to participate in an innovative partnership approach to dredge material disposal. Ultimately, the project will provide significant public benefits through the creation of new wetlands from the use of dredged materials.

Your continuing support of the San Francisco Bay Long Term Management Strategy (LTMS) has resulted in a regional approach to developing solutions for long term dredge disposal needs. The last step is to develop a final environmental impact statement (EIS) and management plan. I respectfully request your support of an estimated appropriation of $100,000 for the development of these plans. We thank you and the Committee for its support of past appropriations.

The appropriations under consideration today will permit the Corps of Engineers to continue the construction of this project, plus necessary maintenance. The current construction schedule calls for the Oakland Channel Deepening Project to be completed in November 1996.

As I stated earlier, we appreciate the cooperation and support of this committee and join with the California Marine Affairs and Navigation Conference (C-MANC) to urge your approval of the appropriations request.

PREPARED STATEMENT OF ROBERTA GOULART, COUNTY WATER AGENCY, CONTRA COSTA COUNTY BOARD OF SUPERVISORS

Mr. Chairman and Members of this distinguished Subcommittee:

Contra Costa County is pleased to support deepening of the third and final phase of the San Francisco-to-Stockton Ship Channel Project, otherwise known as the John. F. Baldwin Ship Channel. Deepening of this channel segment will provide greater shipping efficiency, improve tanker safety considerations and will make shipping more economical for the many industries which utilize this waterway. This project extends from San Francisco Bay, into the Sacramento-San Joaquin Delta Area.

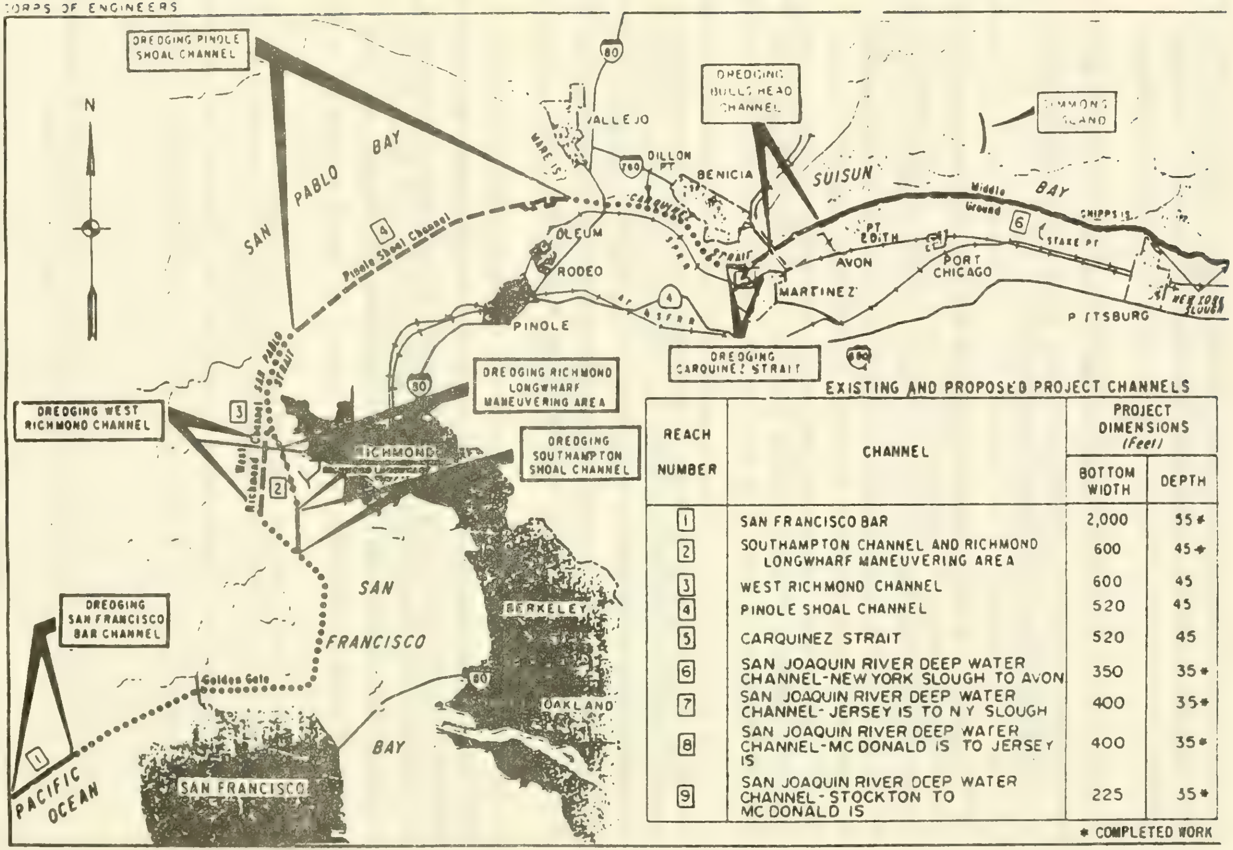
Currently, many existing vessels which navigate this waterway do so by awaiting favorable tides, arriving only partially loaded, or by off-loading (lightering) crude oil and/or petroleum products in deeper areas of the bay.

Channel deepening of this section enables major oil company refineries to continue economically feasible operations within Contra Costa County. Oil companies are looking toward completion of this project as they commit hundreds of millions of dollars toward modification of manufacturing facilities as part of federal and state mandated clean fuel requirements. In addition, channel deepening will allow more efficient transport by full loading of existing (and perhaps larger) vessels, resulting in some reduction in air quality impacts, as well as the above-mentioned safety considerations.

Contra Costa County, as local sponsor for the project, believes that the $600,000 contained in the California Marine Affairs and Navigation Conference (CMANC) recommendations is adequate for Army Corps of Engineers accomplishment of scheduled tasks for this fiscal year. Our request at this time is for funding to be included in the President's Fiscal Year 1997 Budget at this level.

It is becoming increasingly important to work toward completion of this project in the short-term. Continued delay could further cripple a struggling economy which otherwise would be aided by this project. Some of the issues encountered by the Port of Oakland are fundamental components of this project as well, illustrating the importance of working through environmental considerations to expedite dredging activities in San Francisco Bay.

Thank you for your time and your continued support of this project.



EXISTING AND PROPOSED PROJECT CHANNELS

REACH NUMBER	CHANNEL	PROJECT DIMENSIONS (Feet)	
		BOTTOM WIDTH	DEPTH
1	SAN FRANCISCO BAR	2,000	55*
2	SOUTHAMPTON CHANNEL AND RICHMOND LONGWHARF MANEUVERING AREA	600	45*
3	WEST RICHMOND CHANNEL	600	45
4	PINOLE SHOAL CHANNEL	520	45
5	CARQUINEZ STRAIT	520	45
6	SAN JOAQUIN RIVER DEEP WATER CHANNEL-NEW YORK SLOUGH TO AVON	350	35*
7	SAN JOAQUIN RIVER DEEP WATER CHANNEL-JERSEY IS TO N Y SLOUGH	400	35*
8	SAN JOAQUIN RIVER DEEP WATER CHANNEL-MC DONALD IS TO JERSEY IS	400	35*
9	SAN JOAQUIN RIVER DEEP WATER CHANNEL-STOCKTON TO MC DONALD IS	225	35*

* COMPLETED WORK

PREPARED STATEMENT OF ELLEN JOHNCK, EXECUTIVE DIRECTOR, BAY PLANNING COALITION, SAN FRANCISCO, CA

Founded in 1983, the Bay Planning Coalition is a membership-based, non profit corporation representing the broad spectrum of S. F. Bay maritime and related shoreline business and industry, public and private port authorities, oil refineries, recreational marinas, and local governments. We advocate the reasoned and balanced regulation of the use of water and land in the S. F. Bay region and thus ensure the successful implementation of water resource development projects.

We urge your favorable vote for funding the complete list of port and harbor projects recommended by C-MANC. We want to draw your attention to two specific S. F. Bay items on the project list.

1. We strongly support the proposed navigation studies for the San Francisco Bar and Southampton Shoal Channels. The Southampton channel in particular provides deep draft navigation access to Richmond Harbor and the Chevron Longwharf. In 1992, 21 million tons of commercial cargo passed through this channel with both foreign and domestic shipping vessels. Recent information indicates the channel may need modifications to efficiently and safely accommodate newer commercial tanker ship designs, and thus the reconnaissance study is necessary to ensure that a safe navigable approach for these vessels is maintained.

2. The project, known as the LTMS (Long Term Management Strat[illegible]r Dredged Material Disposal) is nearing completion. The LTMS is a cooperative state-federal planning process for the designation of disposal sites --in ocean, in-Bay and upland-- that are environmentally acceptable and economically feasible.

Our LTMS has become a model for the nation. However, the $16 million program is doomed to fail unless one critical aspect of the program is resolved and completed. The entire disposal site decision making process is driven by a regulatory requirement known as sediment contaminant testing. The federal regulatory agencies decide where the dredged material should be disposed based on an evaluation of the results of laboratory tests of the sediment using a suite of chemical, physical and biological analyses. Major economic decisions are made regarding placement of dredged material yet there is no uniform, consistent and practical guidance on how to interpret the scientific data for the purpose of making decisions. Industry spends thousands of dollars on testing and then dredging projects are frequently stalled because of the lack of practical guidance on what the numbers mean and their environmental relevancy.

Since implementation of the Clean Water Act amendments in 1977, the science of testing and evaluating dredged material has advanced faster than our ability to interpret the data into decision making on navigation projects.

Regulatory agencies were content with measuring substances in the parts per million range in the 70's and the parts per billion in the 80's. Today we are able to measure substances in the parts per trillion and even quadrillion range.

For the past two years, the Corps of Engineers has proposed to the Congress in the President's budget, a new program entitled, Dredging Operations and Environmental Research, DOER for short. A major purpose of this program is to develop interpretative guidance for use in dredged sediment decision making. It has not been funded to date. We strongly encourage the subcommittee to support the Dredging Operations Research program by adding a line item to your budget for $2 million to complete and implement a revised sediment testing protocol and uniform interpretative guidelines.

We believe without this type of research incorporated into the LTMS program, the LTMS will be largely ineffective.

Thank you for your serious consideration of our requests.

PREPARED STATEMENT OF ALEXANDER KRYGSMAN, PORT DIRECTOR, PORT OF STOCKTON

Mr. Chairman

I am Alexander Krygsman, Port Director of the **Port of Stockton** in Stockton, California

The San Francisco Bay to Stockton Ship Channels Project is an authorized project, presently under construction

The **Port of Stockton** is primarily a bulk port that serves industry and agriculture in the San Joaquin Valley in California, and the bulk imports and exports of the Western States, including the coal areas of these States.

The **Port of Stockton** recognized as far back as 1952 that deeper channels would be needed for the movements of bulk cargoes and requested the Corps of Engineers to deepen the channel in 1952 Coal, grain, fertilizers and many other bulk materials require deeper channels to serve the larger bulk carriers

The Nation needs ports that can handle larger, more economical and more fuel-efficient vessels close to the production areas, both agricultural and industrial, to conserve energy.

The **Port of Stockton** is such a port.

The dredging of the Stockton Channel portion of the project was completed in 1987 A copy of the **Port of Stockton**'s most recent annual report is attached Cargo volume has increased since the dredging of the Stockton Channel was completed, and the project is certainly paying off

Therefore, we have requested the Corps of Engineers for a potential new navigation study to deepen the Channel further to forty (40) feet or more, if economically feasible

For the **1997 fiscal year**, we are requesting six hundred fifty thousand dollars ($650,000) for this study Because this study has to be coordinated for proper timing with the continuing construction of the John F Baldwin Channel, and with the progress of the Baldwin Channel project, now is the time to do this study

This is not just a new study This study, and the eventual construction, is closely tied to the John F Baldwin Channel construction, and this project needs to be timed appropriately with the John F Baldwin Channel construction Deferring six hundred fifty thousand dollars ($650,000) now could cost millions in extra cost later

We urge you to appropriate six hundred fifty thousand dollars ($650,000) for the Stockton Deep Water Channel Recon Report We also strongly urge that two million dollars ($2,000,000) be appropriated to maintain the channels so that the benefits may continue to accrue

PREPARED STATEMENT OF MICHAEL AND BARBARA LIND, OWNERS AND OPERATORS, JERICO PRODUCTS, INC., PETALUMA, CA

Mr. Chairman and Members of the Committee on Energy and Water Development:

We are Michael and Barbara Lind of Petaluma, California, a community of 48,000 people, located 39 miles north of the Golden Gate Bridge. We own and operate Jerico Products, Inc., a business which accounts for over 350,000 commercial tons of shipping each year on a river that depends on the dredging program authorized by the Congress of the United States, with funds appropriated to the Unites States Army Corps of Engineers, who carry out the task in four-year cycles.

We come to testify today because we are concerned with the future of the dredging program along the Petaluma River, one of only five navigable rivers running through cities in California. The Petaluma River has been a vital element in the economy of Petaluma, and Sonoma County, California, for well over a century and a half. In the last 10 years alone, over 4 million tons of commercial goods have been transported on the river.

The Petaluma River is not only important because of its traditional role in the commercial movement of goods, including agricultural and construction related products, but also because the citizens of Petaluma and surrounding communities in large numbers use the river for recreational purposes, including boating and fishing.

The importance of a continuing maintenance and dredging program for the Petaluma River is also critically important for other reasons as well. The area of Petaluma, is located in a valley between hills which during the winter months, at times, produce significant runoff. A combination of winter storms and high tides, on at least two occasions in the last 15 years has produced 500-year flood experiences, which greatly impacted susceptible areas of the community, including a mobile home park housing many senior citizens. We believe had it not been for constant maintenance and dredging of the river, we may well have experienced an even greater loss of property and associated damage. We in Petaluma know full well the importance of the Congressional commitment to helping us avoid flooding through a vigilant dredging program.

In addition to flood control, the benefits of regularly scheduled dredging includes a remarkable program initiated by a local high school which has restored a salmon run that has graced the area for hundreds of years. Casa Grande High School, featured nationally on ESPN and other networks, mainly through private donations, built a hatchery and began cleaning the creeks running to the Petaluma River. They were then successful in hatching salmon and releasing the fish to restore the traditional breeding locations and save the salmon for future generations. This would not have been possible without a river that flows without obstruction.

On a recreational note, the Petaluma River also has a paddlewheel style boat which travels up and down the waterway with trips scheduled each day. Additionally, the Petaluma area boasts a marina and a downtown turning basin which hosts hundreds of boats each year that come to the community to visit, and in turn, spend much needed tax dollars in the community. The six-year old marina, a public/private partnership, is now starting to make an positive economic impact on the community as more boat owners sign leases to berth their boats in Petaluma.

Two other important points I believe should also be made today concerning the Petaluma River. First, the citizens have recently completed the Petaluma River Plan, a unique document co-authored by a committee of interested citizens, environmentalists, river oriented business owners, the City of Petaluma, and others. The plan is comprehensive and remarkable in that it provides for the enhancement and future uses of the river, including solving long-standing questions regarding land use zoning, the economic viability of the river, and most importantly, protection of this precious resource for our children and grandchildren.

The other point, and as vital as any other I've made today, is the importance of the Petaluma River in the transportation network serving the North Bay Area ,a region with a population of several hundred thousand. For the movement of commercial goods the North Bay is currently served only by Highway 101. This highway has just two lanes in either direction in the critical link between Petaluma and Novato, a city 10 miles south. Additionally, there is a rail line which is used by the California Northern railroad entity to move some commercial products from counties to the north of Sonoma through the Petaluma area heading to points south and east. The Petaluma River therefore, remains a vital piece of the transportation network. Without the river remaining navigable for commercial uses, a tremendous further burden would be shifted to an already congested highway, which currently requires significant infrastructure improvement, including the addition of lanes and the upgrade of several on and off- ramps north of Petaluma.

Mr. Chairman and members of the committee, my company, Jerico Products, depends on the Petaluma River for our very survival. Our future literally rests on our ability to deliver our goods to markets on the west coast, to places around the nation, and indeed to Pacific Rim countries. We are not unusual in this regard. We calculate that river businesses in Petaluma alone account for several hundred jobs. We know that we also help support hundreds more as goods arrive to be distributed to the community and county. Many jobs in other locations are also supported by the products shipped from our area, via the river.

Today, by way of this testimony, we urge that any and all efforts be expended to assist local communities in the North Bay Area, which depend on the Petaluma River, by continuing funding for the dredging of the river from the traditional starting point in San Pablo Bay to the turning basin of Petaluma, to include a 7-mile stretch in the Petaluma area.

On behalf of Petaluma residents and its city council, which asked me to personally deliver a resolution, attached to this statement for the record, we thank you for your support over the past years and ask for your continuing assistance in maintaining funding for dredging of the Petaluma River.

Thank you also for the opportunity to address you today concerning this most important issue for our region.

Resolution No. 96-60 N.C.S.
of the City of Petaluma, California

RESOLUTION OF SUPPORT FOR PROACTIVE EFFORTS TO MAINTAIN AND ENHANCE THE PETALUMA RIVER

THE WITHIN INSTRUMENT IS A
TRUE COPY OF THE ORIGINAL
ON FILE IN THIS OFFICE

FEB 21 1996

ATTEST
CITY CLERK
Paulette Lyon
PAULETTE LYON DEP. CLERK

WHEREAS, the Petaluma River is one of only five navigable rivers running through cities in California; and

WHEREAS, the Petaluma River for over a century has been a vital element in the economic and recreational base of Petaluma, and remains so today; and

WHEREAS, the Petaluma River requires periodic dredging and general maintenance to maintain its necessary role in supporting businesses that use the river on a daily basis, and a community which receives economic and recreational benefits as a result; and

WHEREAS, an extensive River Plan has been developed by a committee of Petaluma citizens which envisions and plans for a sensitive, healthy and economically beneficial future for the river; and

WHEREAS, a concentrated and increased effort must be launched to fully inform all interested parties, private and governmental, as to the need for on-going funding to provide flood protection and maintain the navigability of the river; and

WHEREAS, to that end we endorse any and all efforts to maintain dredging cycles and the economic vitality of the river, and to proactively monitor and comment upon all legislation which may affect the Petaluma River.

NOW, THEREFORE, BE IT RESOLVED that the Petaluma City Council stands ready to work with interested citizens and elected representatives on this most important issue of maintaining the Petaluma River to benefit the commercial and recreational users thereof.

Under the power and authority conferred upon this Council by the Charter of said City.

REFERENCE

I hereby certify the foregoing Resolution was introduced and adopted by the Council of the City of Petaluma at a (Regular) ~~(Adjourned) (Special)~~ meeting on the 20th day of February, 1996, by the following vote:

Approved as to form
R R R
City Attorney

AYES: HAMILTON, STOMPE, MAGUIRE, READ, SHEA, MAYOR HILLIGOSS

NOES: NONE

ABSENT: VICE MAYOR BARLAS

ATTEST: Paulette Lyon
City Clerk DEPUTY CITY CLERK

M. Patricia Hilligoss
Mayor

Council File
Res No 96-60 NCS

LETTER FROM RICHARD W. PARSONS, GENERAL MANAGER, VENTURA PORT DISTRICT, VENTURA, CA

The Ventura Port District respectfully requests that the Congress:

1. Include $3,900,000 in the FY 97 Energy and Water Development Appropriations Bill for the U. S. Army Corps Engineer's maintenance dredging of the Ventura Harbor's federal entrance channel and for the repair of the federal breakwater and jetties. The Corps of Engineers area of responsibility is illustrated in Photo No. 1.

2. Include $350,000 in the FY 97 Energy and Water Development Appropriations Bill to initiate a reconnaissance study to determine the advisability of modifying the existing Federal navigation project at Ventura Harbor to include a sand by-pass system. This study was authorized by the House Committee on Transportation and Infrastructure on September 14, 1995. The study area is illustrated in Photo No. 2.

BACKGROUND

Ventura Harbor is located along the Southern California coastline in the City of San Buenaventura, approximately 60 miles northwest of the City of Los Angeles. The harbor opened in 1963. Annual dredging of the harbor entrance area is usually necessary in order to assure a navigationally adequate channel. In 1968, the 90th Congress made the harbor a Federal project and committed the U.S.

Army Corps of Engineers to provide for the maintenance of the entrance structures and the dredging of the entrance channel and sand traps.

The harbor presently generates more than $40 million in gross receipts annually. That of course translates into thousands of both direct and indirect jobs. A significant portion of those jobs are associated with the commercial fishing industry (approximately 16 million pounds of fish products were landed in 1995), and with vessels serving the offshore oil industry. Additionally, the headquarters for the Channel Islands National Park is located within the harbor, and the only commercial vessels transporting the nearly 100,000 visitors per year to and from the Park islands offshore operate out of the harbor. All of the operations of the harbor, particularly those related to commercial fishing, the support boats for the oil industry, and the visitor transport vessels for the Channel Islands National Park are highly dependent upon a navigationally adequate entrance to the harbor.

OPERATIONS & MAINTENANCE NEEDS

It is estimated that $3,900,000 will be required during FY 97 to address the following operations and maintenance needs at Ventura Harbor:

1) repairs to the storm damaged armor stone on the offshore breakwater;

2) repairs to the deteriorated tribars near the head of the south jetty;

3) repairs to the earthquake damaged north jetty;

4) dredging in sand traps A & B.

STUDY NEEDS

It is estimated that $350,000 will be required during FY 97 in order to initiate the reconnaissance study for a possible sand by-pass system at Ventura Harbor. Given the continuing need for maintenance dredging it is appropriate to determine if a sand by-pass system or other measures can accomplish the maintenance of the Harbor in a manner that is more efficient and cost effective than the current contract dredging approach.

PREPARED STATEMENT OF THOMAS SCHEELER, DIRECTOR OF ENGINEERING, PORT OF SACRAMENTO

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

MY NAME IS THOMAS SCHEELER, DIRECTOR OF ENGINEERING FOR THE PORT OF SACRAMENTO. THE PORT OF SACRAMENTO IS THE LOCAL SPONSOR OF THE SACRAMENTO RIVER DEEP WATER SHIP CHANNEL NAVIGATION PROJECT.

MY PRESENTATION TODAY IS SOMEWHAT UNIQUE IN THAT I AM NOT HERE IN SUPPORT OF FUNDS, AT THIS TIME, FOR OUR PROJECT BUT RATHER TO BRIEFLY SPEAK ABOUT THE PROJECT STATUS AND THE PORT OF SACRAMENTO'S CONTINUED EFFORTS AND COMMITMENT FOR COMPLETION OF ITS DEEPENING. I RECOGNIZE THAT THIS MAY NOT BE WHOLLY APPROPRIATE BUT THIS COMMITTEE HAS BEEN SUPPORTIVE OF OUR PROJECT OVER MANY YEARS AND WE BELIEVE THIS BODY DESERVES TO HEAR THIS EXPLANATION DIRECTLY FROM THE PORT OF SACRAMENTO.

THE FIRST TWO OF SIX PHASES HAVE BEEN COMPLETED ON THIS DEEPENING PROJECT BUT WE HAVE BEEN UNABLE TO IMPLEMENT THE REMAINING PHASES, INITIALLY DUE TO RELOCATION PROBLEMS WITH UTILITY GAS LINES AND SUBSEQUENTLY DUE TO LACK OF FUNDS FOR OUR LOCAL SPONSOR SHARE. TO ADDRESS THIS SITUATION, WE HAVE AND CONTINUE TO WORK AGGRESSIVELY TO DEVELOP NEW BUSINESS TO GENERATE THE REVENUE NECESSARY FOR ITS COMPLETION.

A LARGE TRACT OF PORT OWNED PROPERTY, ADJACENT TO THE PORT HARBOR, HAS FINALLY BEEN APPROVED FOR DEVELOPMENT MOSTLY DUE TO A NEW ACCESS BRIDGE PARTIALLY FUNDED BY ISTEA. THIS IS A VERY IMPORTANT STEP IN THE PORT'S ABILITY TO CREATE NEW BUSINESS AND REVENUE THAT WILL SUPPORT THE COMPLETION OF THE

CHANNEL DEEPENING. WE CONTINUE TO EXPAND AND AGGRESSIVELY PURSUE NEW COMMODITY MARKETS. WE RECENTLY COMPLETED THE SECOND YEAR OF RICE SHIPMENTS TO JAPAN, HANDLING THE MAJORITY OF THIS IMPORTANT NEW EXPORT FROM THE RICE GROWERS THAT ARE IN CLOSE PROXIMITY TO THE PORT OF SACRAMENTO. NEW INDUSTRIAL BULK COMMODITIES ARE BEING HANDLED AND IN COMPLIANCE WITH OFTEN DIFFICULT AND EXPENSIVE ENVIRONMENTAL REGULATIONS. WE CONTINUE TO SERVICE EXISTING COMMODITIES SUCH AS FERTILIZER IMPORTS WHICH IS VITAL TO THE LOCAL GROWERS OF ONE OF THE MOST AGRICULTURALLY PRODUCTIVE AREAS OF THE WORLD.

IN CLOSING, WHAT WE ARE SAYING IS THAT WE CONTINUE TO WORK TOWARDS COMPLETION OF THIS PROJECT, WE HAVE NOT GIVEN UP ON IT AND WOULD ASK THAT NEITHER WOULD YOU. WE HAVE DEALT WITH THE CHALLENGES OF PROJECT COST SHARING AND UPLAND DISPOSAL COSTS AND WE ARE RESOLVED TO ALSO ADDRESS THIS CHALLENGE, WE SIMPLY WILL NEED MORE TIME TO ACHIEVE OUR GOAL.

PREPARED STATEMENT OF LARRY STEFFEN, MOSS LANDING HARBOR DISTRICT, CA

Mr. Chairman and members of the Appropriations Subcommittee;

LAST YEAR, AT THIS TIME, I described to you the crisis at Moss Landing Harbor located at the center of Monterey Bay, California, mid-way between Monterey and Santa Cruz harbors. As you may recall, in March, 1995, I described the flood waters which rushed across the rich Salinas Valley agricultural farmlands up-stream and raced into our harbor causing destruction of docks, pilings and leaving over 100,000 cubic yards of DDT-laden sediment in Moss Landing Harbor.

The picture you are looking at now was taken days after this disaster, described as the worst storm in over a hundred years to hit Monterey county. The news article on the backside of this photo gives personal accounts of the storm impact upon our harbor-based commercial fishing vessels and industry.

At the time of my testimony last year, your Committee asked if the then-proposed thirty million dollars of disaster relief funds for California would assist Moss Landing Harbor District to recover. My response was "If funded through FEMA, yes". We are still hopeful FEMA will help. I am leaving your committee with a copy of our FEMA grant application for $642,000. in federal funds matched with $304,00 of our own local funds build tidegates, sediment catch basins and make critical improvements in our harbor and watershed. Our goal is to prevent a reoccurrence the March, 1995 disaster and we ask for your support of our FEMA grant application.

SINCE THE STORM LAST YEAR, we have worked closely with all of the regulatory agencies, FEMA and especially with our partner, the U.S. Army Corps-San Francisco office to achieve a dredging schedule now set for this May, 1996.

BECAUSE OF THE DDT, up to 50,000 cubic yards of contaminated sediment may have to be placed on limited Harbor District upland areas to be later trucked to our local landfill. The harbor cost is estimated at $16.00 per cubic yard with an estimated total cost of over $800,000.

TO PUT THIS IN PERSPECTIVE, the annual District Operating Budget is only $1.200,000. and the Harbor District has only $685,000. in its Capital Reserve fund at this time. We have found there are no public or private loans available for dredging and our harbor could not afford the debt service even if a loan were available.
At this critical time, when our Harbor District has been trying to replace its forty year old South Harbor docks, expand wharves, docks and create new landside opportunities for commercial fishing and other transient vessels, the District is now faced no choice but to embark upon a very expensive sediment trucking operation this May.

Another project of great importance to our harbor is the $1.3 million repair of the Moss Landing Harbor Breakwater. and hydrology study included in the 1997 U.S. Army Corps of Engineers Maintenance and Operations Budget. Both routine dredging and repair of the breakwater are essential to the economy and safety of Moss Landing Harbor.

TO PRESENT THE BROADER VIEW OF CALIFORNIA PORTS AND HARBORS, COMMERCIAL TRANSPORT TOTALS OVER 184 MILLION TONS of cargo and over three million passengers by vessel each year. Trade with Pacific Rim nations accounted for 25% of the Nation's imports and exports in 1980; by 1993, that share of trade was almost 35% of the national total and rising (this data is from U.S. Department of Commerce, 1994). An economic analysis conducted by the California Research Bureau found that in 1992, ports and port-related activities contributed approximately $6 billion to the California economy (this data is from California Research Bureau, 1993).

AT THE LOCAL MOSS LANDING HARBOR LEVEL, at the present time, the Moss Landing harbor is experiencing dramatic growth of local private investment with over $60 million dollars in capital development the past five years by David Packard (of Hewlett-Packard) in the construction of the large Monterey Bay Research Institute (MBARI) and other oceanic research facilities. The new MBARI $20 million, 125' long by 65' wide SWATH research vessel "Western Flyer" arrived at Moss Landing two weeks ago. Only because the high tech ship has controllable ballast and it can raise its hull to draw only nine and a half feet, it is able to entering the harbor, berth and leave the harbor at only the highest tides. The authorized dredged depth at the entrance is fifteen feet and the depth is presently eight and a half feet.

Additionally, the new twenty million dollar California State University Moss Landing Marine Laboratory (MLML) facility is planned for completion in 1998. Both MBARI and MLML will bring in over 500 high paying ocean research related jobs and provide many other service-oriented employment opportunities for unemployed and low-income persons in Monterey and Santa Cruz counties.

THE NEW MONTEREY BAY STATE UNIVERSITY at the de-activated Fort Ord Army base has also requested the District discuss landside use, dock space and water access at Moss Landing for their future operations.

Solving the above "DDT Bad News" story with approval of our FEMA grant, moving foreward with repair of the breakwater at Moss Landing harbor in 1997 and the ability of the U.S. Army Corps of Engineers and the Harbor District to continue our historic routine of maintenance dredging every three years is critical to our harbor economy. Our dredging, though small in volume with less than 100,000 cubic yards at the harbor entrance, main channel and in the South Harbor berths has significant economic impacts upon our harbor-based commercial fishing industry and the international oceanic research community which benefits from the MBARI and two state universities located in Moss Landing and at Fort Ord.

THE FUTURE OF MOSS LANDING HARBOR and hundreds of other small but economically vital harbors nationwide lies in the implementation of the December, 1994 Report to the Secretary of Transportation entitled THE DREDGING PROCESS IN THE UNITED STATES: AN ACTION PLAN FOR IMPROVEMENT. Important revisions of the current Water Resources Development Act (WRDA) will allow Federal-local cost sharing of all disposal alternatives of dredged material and improve enhance local coordination and communication in the dredging project approval process. Along with a new user fee to help pay for the management of existing ocean and near-shore disposal sites, our nations coastal ports, small and large will continue to grow, produce more jobs. They will become, once again, a vital link to Pacific Rim trade and our world economy.

Thank you for the opportunity to present this testimony.

Can I answer any questions?

PREPARED STATEMENT OF STAN WISNIEWSKI, DIRECTOR, COUNTY OF LOS ANGELES, MARINA DEL REY, CA

FISCAL YEAR 97 FUNDING FOR MARINA DEL REY DREDGING AND NAVIGATION STUDY, AND MALIBU COASTAL STUDY

Los Angeles County respectfully requests that the Congress of the United States include funds in FY 1997 Energy and Water appropriations for the following three projects, which are urgently required to preserve, restore, and maintain vital and precious public recreation assets.

Marina del Rey Entrance Channel Dredging
($5,000,000)

The U. S. Army Corps of Engineers is responsible for maintenance dredging of the Marina del Rey's entrances and main channel, pursuant to a perpetual right of way and easement agreement with the County. The last significant dredging of Marina del Rey occurred in 1981, with 217,000 cubic yards of material removed. Since then, 35,000 cubic yards were removed in 1987 and 55,000 cubic yards were dredged in 1994.

There are currently over 500,000 cubic yards of sediment that need to be removed to return the entrances to a design depth of 20 feet. Shoaling in the south entrance has left a navigable channel that is only 60 feet wide (10% of the entrance width), with a minimal depth for boating safety, of 10 feet. The north entrance, which is approximately 50% closed, must serve two-way traffic, resulting in 80% of the reported boat groundings.

The near emergency created by these conditions has lead to a plan to dredge 240,000 cubic yards of clean sediments at the end of March and early April, 1996. This project which is being funded out of current year appropriations, will not only open 50% of the south entrance and 90% of the north entrance, it will also provide time for continuing work on the long-term solution to the Marina's dredging problem. However, it will leave 300,000 cubic yards of contaminated sediments that must be removed to regain design depth and avoid annual emergencies caused by shoaling.

Because the President's FY 97 budget has not been released, it is not known if any funds have been included to perform maintenance dredging at Marina del Rey. We are, therefore, requesting your support for an appropriation of $5 million to remove the 300,000 cubic yards of sediments, which continue to threaten the ability of the U. S. Coast Guard, the County Sheriff's Harbor Patrol, the County Lifeguards and the City and County Fire Departments to respond to emergencies. As these agencies are the critical core of the LAX Air-Sea Disaster Response Team, it is imperative that the Marina's entrances remain open and safely navigable.

To avoid the potential cost of upland disposal of the 300,000 cubic yards of contaminated sediments, which could be $30 million, the County is working with the City of Long Beach, the Corps, the Environmental Protection Agency, and others, to gain approval for use of the City of Long Beach's borrow pits for contaminated sediment disposal. The City has between 1,400,000 and 2 million cubic yards of sediment in the Los Angeles River estuary that must be removed, for which they will be requesting an appropriation from Congress. Because the dredging of Marina del Rey will depend on completion of the City's project, the County asks that you support their funding request, as well as ours.

Marina del Rey and Ballona Creek Feasibility Study
($500,000)

The sediments creating navigational hazards in Marina del Rey's entrances contain contaminants that make dredging and disposal difficult and costly. The U. S. Army Corps of Engineers has completed a reconnaissance study which established that there is a Federal interest in solving this problem. The feasibility phase of the study is about to begin, with the County agreeing to provide 50% of the necessary funding.

The study's scope is currently being finalized. It will focus on an economical and environmentally safe disposal option for the contaminated sediments, as well as on actions that can be taken in the Ballona Creek watershed that will eliminate or reduce the flow of contaminated sediments into Marina del Rey's entrance. Dedicated staff from the County, the Corps, the City of Los Angeles, the Santa Monica Bay Restoration Project, Heal the Bay, and other environmental and regulatory agencies have worked to limit the scope, time, and cost of this study. Current estimates are that the study will require two to three years to complete, at a cost of $2 million. It is unknown at this time if there are any funds in the President's FY 97 budget for this study. We, therefore, request your support for an appropriation of $500,000 for the Federal share of the cost in FY 97.

Malibu Coastal Area Shoreline Protection Study
($200,000)

A reconnaissance study, which was conducted by the U. S. Army Corps of Engineers, determined that there is a Federal interest in a project that would widen a sandy beach to protect Pacific Coast Highway, and other coastal property, as well as to expand public access to the beach. The next phase of the project would be the Corps' feasibility study, which would cost $1.4 million. At present, the County has not agreed to share in the cost of the study because it has no means to finance the long-term costs for maintenance and renourishment of the beach. As a consequence, the project will probably not be included in the President's FY 97 budget; however, the County supports the recommendation of the California Marine and Navigation Conference (C-MANC) that $200,000 be added to the FY 97 budget for the Federal share of this study's cost.

Because this project would be of great benefit to the public, providing a beautiful beach and protection for the main traffic artery between the Malibu coastline and Los Angeles, the feasibility study should be funded for FY 97. The County is hopeful that funding sources could be secured during that time to ensure that future costs of the project could be met.

Opposition to Presidential Policies

Los Angeles County strongly opposes the President's policies related to the elimination of Federal funding for maintenance dredging of recreational harbors and for shoreline protection projects. Attached is a copy of a letter to the President, signed by four County Supervisors, concerning this matter. While the Federal Government is obligated by statute and agreement to perform maintenance dredging in Marina del Rey, we request your opposition to the President's policy and your support of requests for funding of maintenance dredging projects for recreational harbors.

Shoreline protection projects should also be supported, particularly in southern California, where the beaches and coastal areas are heavily populated and popular recreational destinations. Travel and tourism are among the nation's largest and fastest growing industries, with 85% of all tourism revenues being generated in coastal states. Unfortunately, only a small portion of the Federal tax dollars generated by coastal tourism is being returned to coastal regions in the form of shore protection and beach renourishment. Los Angeles County's beaches are world famous, attracting tourists from every corner of the globe. As such, the coastline is a major economic generator for California and it must be protected.

The difficult task of making shrinking financial resources stretch to meet the growing demand for services faces all of us in government. I trust that you and your Committee will not only be equal to the task, but will recognize the importance of funding the projects discussed in this letter. Again, your consideration of these requests and your continued support are very deeply appreciated.

LETTER FROM THE BOARD OF SUPERVISORS, COUNTY OF LOS ANGELES, LOS ANGELES, CA

January 18, 1996

The President
The White House
Washington, DC 20500

Dear Mr. President:

DREDGING MARINA DEL REY

Marina del Rey is the largest small craft harbor in the United States, serving California's population epicenter. The Marina is owned and operated by the County of Los Angeles, but the dredging of its entrances and main channel are the responsibility of the Army Corps of Engineers. Marina del Rey has not been thoroughly dredged since 1981. Therefore, the south entrance is now on the verge of completely closing and the north entrance is 50% closed. This cripples any ocean rescue response to air/sea disasters off of Los Angeles International Airport (LAX). Accordingly, the United States Coast Guard has appealed to the Corps of Engineers for an emergency dredging.

We have been informed by the Army Corps of Engineers that it does not have any funds to perform a dredging project in Marina del Rey this year, not even for an interim dredging to remove clean sediments, which can be economically placed on an adjacent beach. Development of an aggressive long-term solution to this entrance navigation problem is underway.

The Marina is important to the economy of Los Angeles County and the State of California. It is critical that every effort be made to keep its entrances safe for navigation and to maintain emergency response preparedness for LAX, one of the largest airports in the world. Therefore, on behalf of the residents of Los Angeles County, we request that you direct the Corps of Engineers to perform its mission. This is now becoming a matter of considerable public concern and County government asks for the support of the Administration.

LETTER FROM JOHN WOLTER, DEPARTMENT OF PUBLIC WORKS, CITY OF NEWPORT BEACH CALIFORNIA

March 6, 1996

Honorable Pete V. Domenici, Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
2362 Rayburn Hourse Office Building
Washington D.C. 20515

Subject Statement of the City of Newport Beach before the Committee on Appropriations March 6, 1996

Dear Mr. Chairman and Members of the Committee,

The City of Newport Beach is in support of the California Marine Affairs and Navigation Conference (CMANC) proposal for the 1997 Federal budget, which proposes funding of several Corps of Engineers studies and projects which affect the City of Newport Beach. In particular the City requests your support for continued funding of the Santa Ana River Mainstem Project which enters the Pacific Ocean adjacent to the City.

The City also supports four other Corps of Engineers projects with funding recommended in the 1997 fiscal year These are described below:

1 Newport Harbor Entrance Jettys - complete repairs ($1,900,000)
The Corps' Los Angeles District has completed a condition survey of the Harbor entrance jettys and recommends maintenance and rehabilitation of only the West jetty Both jettys show signs of storm damage and wear since their construction in the late 1920's and early 1930's. For over 60 years the East jetty has provided public access, which the Corps of Engineers has now recommended closing in lieu of maintenance. The City therefore recommends that a total of $1,900,000, which includes $500,000 for concrete repairs to the East jetty, be provided in the 1997 fiscal year under operations and maintenance in the Bill that you are considering.

2 The Upper Newport Bay - Feasibility Study ($200,000)

The Corps' Los Angeles District has completed a reconnaissance report which determined Federal interest in the project and recommended preparation of a feasibility study. The study will provide planning and engineering necessary to extend the existing Federal Channel into Upper Newport Bay, and to remove sediment from the Upper Bay to enhance and protect wetland areas, salt marsh and navigational channels. Funding to initiate the study was approved in the 1994 Federal budget. This request is for $200,000 needed to continue the study. The County of Orange and the City of Newport Beach are the local sponsors providing 50/50 matching funds for the study.

3 Stage 10 Cooperative Federal Beach Erosion Control Project Surfside/Sunset Beach to Newport Beach ($5,500,000)

These funds are necessary to continue beach nourishment. This project constructed the West Newport Beach Groin Field and beach fill during the 1970's and has continued to dredge sand onto a feeder beach at Surfside/Sunset Beach. The project also includes the placement of sand onto the beach within the West Newport Beach Groin Field. The State of California, County of Orange, Surfside Private Community, City of Huntington Beach, and City of Newport Beach are local sponsors. The cooperative project provides for 67% Federal and 33% Local matching funds for the project.

4 Newport Harbor/Dana Point Harbor, Dredge Material Ocean Disposal Site, LA-3 ($300,000)

These funds are necessary for the Corps of Engineers and the Environmental Protection Agency to complete all actions, planning and environmental studies necessary to allow for permanent designation of the LA-3 ocean disposal site. The site is used by the Corps of Engineers and other public and private interests for disposal of dredged material meeting certain criteria. The LA-3 disposal site has been used for years without any problems for disposal of fine sediment and mud, which is not suitable for beach replenishment, dredged from channel maintenance and wetland restoration projects. The cost of dredging will be significantly increased and projects may become infeasible, if the LA-3 disposal site is closed because there are no practical alternative disposal sites available.

EXECUTIVE SUMMARY

This condition survey was conducted for the purposes of identifying the present condition of the Federal structures, evaluating the necessity of scheduling a rehabilitation contract, and developing a long-term program for monitoring and inspection. Extensive field data was collected which included side scan sonar surveys, topographic and fathometric surveying, and visual observations.

The west jetty STA 8+00 - 15+00 is in poor condition and is recommended for repairs to full design conditions. Although the structural integrity is not immediately threatened and there is no threat of imminent failure, there are indications of serious storm damage and wear. Crest elevations and cross-sectional profiles indicate a general poor agreement with design profiles.

The west jetty STA 15+00 - STA 29+75 is in poor condition and is recommended for repairs to full design conditions on the seaward side between STA 15+00 - STA 27+00, and selected locations on the channel side. Visual observations and cross-sectional profiles indicate a poor agreement with design profiles. Damage is significant enough such that the structural integrity is immediately threatened by a significant storm event.

The west jetty STA 29+75 - STA 36+50 is in good overall condition and performing its intended function well. Visual observations and cross-sectional profiles indicate a good agreement with design profiles. The head section is recommended for rehabilitation to full design condition.

The reinforced concrete bulkhead section of the east jetty is in fair overall condition and performing its intended function; no structural rehabilitation is recommended. The interlocking sheet piles appear in good condition but the ends indicate deterioration. The concrete slab deck has deteriorated. However, the slab deck is not an integral structural member and serves mainly to contain the supply of fill sand between the bulkheads. The present condition of the deck does not immediately threaten the jetty system; the potential for future related progressive damage to the jetty structure or function is low. The concrete slab deck is not recommended for repairs at this time. Some of the sand fill between the two bulkheads has been lost over time; it is recommended that this fill be replaced. The deck currently serves as a pedestrian promenade. Due to the wave overtopping that can occur and the deterioration of the deck, in the interest of public safety it is recommended that all pedestrian and/or vehicular access be restricted.

The east jetty spur is in excellent condition at this time and requires no remedial action.

PREPARED STATEMENT OF LAWRENCE G. MALLON, SPECIAL COUNCIL, PORT OF RICHMOND

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE,

THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY IN SUPPORT OF THE FISCAL YEAR 1997 ENERGY AND WATER APPROPRIATIONS MEASURE.

I AM LAWRENCE G. MALLON, SPECIAL COUNSEL TO THE PORT OF RICHMOND. I APPEAR AT THE REQUEST, AND ON BEHALF OF THE PORT DIRECTOR, MICHAEL R. POWERS, AND MAYOR ROSEMARY CORBIN AND THE MEMBERS OF THE CITY COUNCIL OF THE CITY OF RICHMOND, AS THE LOCAL SPONSOR OF THE PROJECT FOR NAVIGATION, RICHMOND HARBOR, CALIFORNIA, AUTHORIZED UNDER THE WATER RESOURCES DEVELOPMENT ACT OF 1986 ("WRDA 1986")(PUBLIC LAW 99-662).

MY APPEARANCE IS NECESSITATED BY AN IMPORTANT HEARING AND VOTE IN SUPPORT OF THE NAVIGATION PROJECT PENDING BEFORE THE CITY COUNCIL AS WE SPEAK REQUIRING THE PRESENCE OF ALL COUNCIL MEMBERS AS THE CITY, INTENDED AS FURTHER EVIDENCE OF ITS GOOD FAITH AND CONTINUING PROJECT SUPPORT, PROCEEDS TO THE CONSIDERATION OF A RESOLUTION OF INTENTION CONCERNING THE FINANCIAL PARTICIPATION BY PRIVATE SECTOR BENEFICIARIES IN PROJECT FINANCING IN THE FIRST-OF-ITS-KIND RICHMOND HARBOR NAVIGATION IMPROVEMENT DISTRICT.

THE MAYOR AND CITY COUNCIL RECOGNIZE AND EXPRESSES THEIR PROFOUND GRATITUDE TO OUR SENATORS, BARBARA BOXER AND DIANNE FEINSTEIN FOR THEIR TANGIBLE SUPPORT IN DIFFICULT FISCAL TIMES IN FUNDING THIS NAVIGATION PROJECT OF CRITICAL IMPORTANCE TO THE FUTURE DEVELOPMENT OF THE CITY AND PORT OF RICHMOND.

THE CITY OF RICHMOND IS ESPECIALLY PLEASED THAT AFTER TEN LONG YARS--AND THE EXPENDITURE TO DATE OF AN AMOUNT IN EXCESS OF EIGHT MILLION DOLLARS IN FEDERAL FUNDS, THE RICHMOND PROJECT IS A NEW CONSTRUCTION START IN FISCAL YEAR 1996. OUR REQUEST IS THEREFORE FOR SUFFICIENT FOLLOW-ON APPROPRIATIONS TO PERMIT CONTINUING CONSTRUCTION AND SUBSTANTIAL PROJECT COMPLETION IN FISCAL YEAR 1997 REPRESENTED BY THE BALANCE OF THE FEDERAL SHARE OF PROJECT CONSTRUCTION COST OF SEVENTEEN MILLION DOLLARS.

AS WE SPEAK THE REPRESENTATIVES OF THE CITY AND DISTRICT ENGINEER HAVE COMMENCED NEGOTIATIONS EXPECTED TO CULMINATE IN THE EXECUTION OF THE PROJECT COOPERATION AGREEMENT FOR THE PROJECT IN LATE JUNE-EARLY JULY OF THIS YEAR. THE FINAL GENERAL DESIGN MEMORANDUM AND ENVIRONMENTAL IMPACT STATEMENT FOR THE PROJECT WILL SHORTLY BE TRANSMITTED BY THE SAN FRANCISCO DISTRICT TO THE SOUTH PACIFIC DIVISION, AND ON TO HEADQUARTERS, SETTING THE STAGE FOR COMMENCEMENT OF CONSTRUCTION BEFORE THE END OF THE CURRENT FISCAL YEAR.

THE NATIONAL ECONOMIC DEVELOPMENT (NED) PLAN FOR THE PROJECT INVOLVES THE CONSTRUCTION OF THE PROJECT FROM THE CURRENT 35 TO 38 FEET MLLW. THE PLAN CONTEMPLATES OCEAN DISPOSAL OF THE BULK OF THE 1.7 MILLION CUBIC YARDS OF PROJECT DREDGED MATERIAL AT AN EPA DESIGNATED OCEAN DISPOSAL SITE, AND

CONSISTENT WITH THE LONG TERM MANAGEMENT STRATEGY (LTMS) FOR DREDGED MATERIAL MANAGEMENT FOR THE SAN FRANCISCO BAY AREA. THE BALANCE OF APPROXIMATELY TWO HUNDRED THOUSAND YARDS OF PROJECT AND BERTH MATERIAL UNSUITABLE FOR UNCONFINED AQUATIC DISPOSAL WILL BE TREATED AND ENCAPSULATED FOR BENEFICIAL REUSE AT A PORT PROVIDED SITE DEDICATED TO MARITIME USE.

SUBJECT TO ENACTMENT OF PENDING LEGISLATION PERMITTING COST-SHARING OF IMPROVED UPLAND DISPOSAL SITES AND BENEFICIAL REUSE OF DREDGED MATERIAL AND SUCCESSFUL NEGOTIATION OF A PROJECT COOPERATION AGREEMENT WITH THE FEDERAL GOVERNMENT, THE CITY COUNCIL, AS THE NON-FEDERAL PROJECT SPONSOR, IS PREPARED TO MEET ITS STATUTORY COST-SHARING REQUIREMENTS UNDER THE 1986 ACT.

IN SUBSTANTIAL FULFILLMENT OF ITS REQUIRED FINANCIAL CONTRIBUTION TO PROJECT CONSTRUCTION COST, IN MAY, 1989 THE CITY COUNCIL BY ORDINANCE NO. 21-89 CREATED A RICHMOND HARBOR NAVIGATION IMPROVEMENT DISTRICT. THIS IS INTENDED TO ENSURE TIMELY PAYMENT OF THE LOCAL SPONSOR'S SHARE OF PROJECT CONSTRUCTION COSTS THROUGH THE ANTICIPATED LEVY OF BENEFIT ASSESSMENTS ON THE MAJOR BENEFICIARIES OF THE NAVIGATION IMPROVEMENTS. THE RESOLUTION OF INTENTION NOW BEFORE THE CITY COUNCIL TO LEVY A BENEFIT ASSESSMENT FOR THIS PURPOSE THIS YEAR IS NECESSARY IN ORDER THAT BONDS MAY BE ISSUED AND ASSESSMENTS COLLECTED IN THE 1996-97 TAX YEAR FOR DEPOSIT IN THE ESCROW ACCOUNT IN ADVANCE OF PROJECT CONSTRUCTION AS REQUIRED.

IN SUMMARY, AS THE NON-FEDERAL SPONSOR AND PRINCIPLE PROJECT PROPONENT, WE REAFFIRM OUR SUPPORT AND ARE PREPARED TO MOVE FORWARD IN PARTNERSHIP WITH THE CORPS TO EXECUTE THE PROPOSED

PROJECT SCHEDULED FOR COMPLETION OF CONSTRUCTION IN FISCAL YEAR 1997. WE HAVE MADE CONCRETE PROGRESS IN FULFILLMENT OF OUR PROJECT FINANCIAL RESPONSIBILITIES THROUGH THE CREATION OF A NAVIGATION BENEFIT ASSESSMENT DISTRICT. WE ARE PREPARED TO EXECUTE A FINAL PCA TO SET THE STAGE FOR COMMENCMENT OF PROJECT CONSTRUCTION IN AUGUST-SEPTEMBER, 1996. WE HAVE IDENTIFIED AND ACQUIRED, AND WILL IN DUE COURSE LET THE NECESSARY CONTRACT FOR SITE IMPROVEMENTS OF THE UPLAND DISPOSAL SITE FOR DREDGED MATERIAL DISPOSAL FROM PROJECT CONSTRUCTION SUBJECT TO APPLICABLE COST-SHARING LEGISLATION.

WE ASK THE SUBCOMMITTEE'S HELP TO ASSURE THE AVAILABILITY OF THE ESTIMATED $15,274,000 IN FEDERAL FUNDS NECESSARY TO SUBSTANTIALLY COMPLETE PROJECT CONSTRUCTION IN THE FISCAL YEAR 1997 ENERGY AND WATER APPROPRIATIONS MEASURE BEFORE THE COMMITTEE FOLLOWING CONTRACT AWARD AND COMMENCEMENT OF PROJECT CONSTRUCTION IN FISCAL YEAR 1996.

THANK YOU

CALIFORNIA WATER RESOURCE DEVELOPMENT AND RECLAMATION PROJECTS

PREPARED STATEMENT OF AUDREY Z. TENNIS, CHAIR, FEDERAL APPROPRIATIONS COMMITTEE, CALIFORNIA WATER COMMISSION

The California Water Commission is an official agency of the State of California. It is composed of nine representative citizens from throughout the State. The Commission is charged by statute with representing State of California and local interests before your Committee. The Commission is coordinating the filing of the statements of a number of State and local agencies. On behalf of the California Water Commission, I would like to express our sincere appreciation for the support this Committee has given California water, fishery and flood control appropriations over the years. I am privileged to appear before you with the official recommendations of the State of California for Fiscal Year 1997 appropriations.

I would first like to make a few general comments:

We have prepared our testimony with the best information we could obtain; however, it has been difficult without a detailed Fiscal Year 97 President's Budget. We request that the record remain open until the detailed Fiscal Year 97 President's Budget is available so that we can submit an amended statement with adjusted figures, depending on the dollar amounts in the President's Budget for the respective projects.

Historically, the State and Federal governments have worked cooperatively on cost-shared programs with the funding available to them. For this reason, we would like to respond to the language in last year's Committee Report on the House appropriations bill which suggested that Congress would not appropriate funds for cost-shared programs until California contributed $20 million for the Shasta Dam temperature control device. California has expended over $6 million on cost-shared restoration actions, and the Governor supports placing a bond measure which contains $50 million for State cost-sharing on restoration actions before the state's voters. Furthermore, there are a number of state-federal programs -- most notably in the Bay-Delta -- where State contributions on cost-shared programs are significantly in excess of federal contributions.

The Commission would like you to to know that it supports projects as shown on the attached document entitled, *California Water Commission - Final Recommendations for Fiscal Year 1997 Federal Appropriations for California Water, Fishery and Flood Control Projects, March 1, 1996.* That document contains recommendations adopted by the Commission on March 1, 1996.

SPECIAL RECOMMENDATIONS FOR FUNDS. The Commission recommends funds be appropriated for several projects of the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service, which are summarized in the following table. Brief comments on the need for the funding level follow the table.

U.S. ARMY CORPS OF ENGINEERS

CWC No.	Project and County	Projected Funding Needs FY 1997	CWC Final Recommendation FY 1997	Page No.
General Investigations - Surveys				
112	Sacramento River and Tributaries Watershed Management Study	$ 400,000	$ 400,000	3
121	Sacramento-San Joaquin Delta Investigation	600,000	600,000	3
135	Arroyo Pasajero (Fresno) [Also see CWC 660A, USBR)	950,000	950,000	4
139	Tule River (Tulare)	200,000	200,000	5
Preconstruction Engineering and Design				
201	American River Watershed	3,500,000	3,500,000	5
238A	Kaweah River (Tulare)	600,000	1,300,000	6
238B	Kaweah River - Seismic	--	1,000,000	6
Construction - General				
302	Sacramento River Restoration (Glenn) [Also see CWC 622, USBR]	300,000	1,000,000	7
381	Los Angeles County Drainage Area Project	15,000,000	50,000,000	7

U.S. BUREAU OF RECLAMATION

CWC No.	Project and County		Estimated Funding Level FY 1997	CWC Final Recommendation FY 1997	Page No.
General Investigations (Mid-Pacific Region)					
541	California Water Augmentation Program		300,000	300,000	8
Construction Projects (Mid-Pacific Region)					
Shasta Division					
611	Temperature Control Device Shasta Dam	Federal	0	0	8
		Restoration	3,470,000	3,470,000	
		NonFed	0	0	
		Total	3,470,000	3,470,000	
612	Coleman National Fish Hatchery Modification	Restoration	2,000,000	2,000,000	8
Sacramento River Division					
621	Winter-Run Chinook Salmon Captive Broodstock Program		0	400,000	9
624	Red Bluff Diversion Dam Fish Passage Program		500,000	500,000	9
626	Red Bluff Diversion Dam Demonstration Research Facility Evaluation		1,500,000	1,500,000	9
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302, Corps)		3,000,000	4,300,000	7
Delta Division					
646	Rock Slough Fish Screen (Contra Costa)		0	1,500,000*	9
San Luis Unit - CVP					
660A	Arroyo Pasjero Studies (Also see CWC 135 - Corps)		500,000	870,000	4
PL 102-575 Water Recycling Projects (Lower Colorado and Mid-Pacific Regions)				(See comments)	10

U.S. ARMY CORPS OF ENGINEERS

CWC No.	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
112	Sacramento River Watershed Management Study	Federal	2,000,000	–	800,000	–	400,000	400,000
		NonFed	1,200,000					
		Total	3,200,000					

CWC 112 - Sacramento River and Tributaries Watershed Management Study. The Sacramento River Flood Control Project, authorized by Congress in 1917, is located on the Sacramento River and tributaries in northern California. The project provides flood protection to most of the metropolitan areas located in the greater Sacramento Valley, including the State capital in Sacramento. Over the years, society's values, uses, restrictions, and demands on the flood control project and rivers encompassed by the Project have changed significantly. Today, society is demanding not only protection from flooding, but also recreational opportunities, enhancement of the environment and ecosystem, and economic growth of local communities. To meet these and other needs along the river, individual and separate activities are using the same base assumption, which is to develop their specific project or program around the flood control project, as it presently exists. This base assumption with a fact that some activities are perceived as conflicting or competing has placed a number of activities along the river at impasse.

This creates a need to develop and implement a comprehensive management plan that considers flood control project modification or reconfiguration and would assist in coordinating all the activities related to flood control. This plan would help assure continued viability of the Sacramento River Flood Control Project and the river system for future generations. This plan would be studied and developed while existing public safety activities continue. Once the plan is ready for implementation, a transition process will occur to implement the comprehensive plan and terminate or merge existing program activities.

The study area comprises the Sacramento River and Tributaries north from Collinsville to Red Bluff and includes portions of Solano, Yolo, Sacramento, Sutter, Colusa, Butte, Glenn and Tehama Counties. The main communities are Rio Vista, Sacramento, Knights Landing, Marysville/Yuba City, Colusa and Red Bluff. The study encompasses the limits of two ongoing projects, the Sacramento River Flood Control Project and the Sacramento River Bank Protection Project, and also includes the area within the Sacramento River, Chico Landing to Red Bluff project.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
121	Sacramento San Joaquin Delta Investigation	Federal	5,940,000	3,955,000	800,000	543,000	600,000	600,000
		NonFed	2,975,000					
		Total	8,915,000					

CWC 121 - Sacramento-San Joaquin Delta Investigation - The study area is located in Sacramento, San Joaquin and Contra Costa Counties and extends from Walnut Grove south to Tracy and from the city of Stockton west to Suisun Bay. The area within the Sacramento-San Joaquin Delta consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways and surrounded by 1,100 miles of levees which normally prevent the lands from being inundated by high tides or high river stages. However, flood protection is inadequate for the islands and tracts within the study area. Over 140 levee failures have occurred in the Delta since 1900. About 30 of these failures have occurred since 1980. Lands within these levees are among the most productive agricultural lands in the State, and failures due to levee instability are becoming more prevalent. The major reasons for this instability are the subsidence of island interiors and poor foundation conditions of existing levees.

Also, water quality degradation occurs due to saltwater intrusion resulting from levee failures. Damages from levee failures and costs associated with maintenance work are increasing. The most recent levee failures in the study area were in February 1986, which caused damages estimated at $17 million. The purpose of the study is to determine viable improvements for flood control, salinity intrusion caused by levee failures, navigation, recreation, fish and wildlife, and long-term management of the complex island/waterway network in the Delta. The State of California, the local sponsor, signed the Feasibility Cost Sharing Agreement in August 1991. The State and the Corps are conducting the cost-shared special study with the goal of producing a regional planning report for flood control, environmental, restoration and navigation.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
135 Corps	San Joaquin River Basin, Arroyo Pasajero (Fresno) (Also see CWC 660A - USBR)	Federal	3,665,000	1,577,000	700,000	519,000	950,000	950,000
		NonFed	2,800,000					
		Total	6,465,000					
660A USBR	Arroyo Pasajero Studies (Also see CWC 135 - Corps)	USBR	1,151,000	236,000	225,000	225,000	500,000	870,000
		Corps						
		NonFed						
		Total	4,666,000					

CWC 135 (Corps) - Arroyo Pasajero. In the 1960s, in cooperation with the California Department of Water Resources (DWR), the U.S. Bureau of Reclamation (USBR) designed and constructed a 100-mile-long reach of the California Aqueduct called the San Luis Canal to convey municipal and agricultural water to California water users. The San Luis Canal is part of the "joint-use facilities" along the westside of the San Joaquin Valley, which are operated by DWR. Design, construction, operation and maintenance costs for this project are shared (DWR 55% and USBR 45%).

The Canal crosses an alluvial fan deposited from a natural drainage channel called Arroyo Pasajero. By original design, these flows were to be temporarily stored in a ponding basin upstream on the western side of the Canal and periodically discharged into the Canal through twelve inlet gates when necessary. Provisions were made also to pass runoff beneath the Canal to the east side through a gated evacuation culvert. Operational experience shows that floodflow volume and sediment load are much greater and more threatening to the Canal than designers had originally anticipated. Revised hydrology calculations now show that Arroyo floodflows present a significant threat to Aqueduct integrity, and could result in a canal failure, disrupting the water supply to millions of people in Southern California and to agricultural water supply to the southern San Joaquin Valley. Asbestos content of the sediment is an additional serious concern.

Severe flooding was experienced at the Arroyo during the winter of 1994-95. On March 10, 1995 a section of Interstate 5 collapsed when floodflows raced down the Arroyo. Seven people lost their lives and there was significant property damage. Flood damage claims filed by adjoining private landowners against USBR and DWR have exceeded $10 million from this one flood season alone. Damage to canal lining from the flooding was repaired under an emergency construction contract, and aqueduct facilities were unavailable for water service until the repairs were made. Arroyo flooding also closed Highway 269, isolating the community of Huron. DWR is taking the lead in a multi-agency group formed as a result of this most recent flooding to investigate the solutions to the various problems in this area, and develop broad-based support for the implementation of flood control measures on the Arroyo Pasajero and neighboring streams.

CWC 660A (USBR) - Arroyo Pasajero - The USBR participation in DWR's Arroyo Pasajero program, pursuant to the JOA, includes three basic categories of study. These are Arroyo Pasajero Joint Corps/DWR feasibility study, Westside Streams drainage studies (all Diablo Range cross-drainage except Arroyo Pasajero), and ongoing data gathering and flood control planning for the Arroyo Pasajero which is not contractually part of the Corps study. The USBR continues as a 45% cost sharing partner to DWR on the Corps Arroyo Pasajero feasibility study.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
139	San Joaquin River Basin, Tule River	Federal	1,444,000	844,000	200,000	148,000	200,000	200,000
		NonFed	1,129,000					
		Total	2,573,000					

CWC 139 - Tule River. Success Dam and Lake, on the Tule River, is located in the southern San Joaquin Valley, about 6 miles east of the town of Porterville. Success Dam, authorized by the Flood Control Act of 1944, was constructed by the Corps and is operated for flood control and storage of irrigation water. The project consists of a 142-foot high, earthfill dam, creating a reservoir with a storage capacity of 85,000 acre-feet.

Feasibility studies investigated raising and widening the spillway by 10-feet and 100-feet, respectively, to increase storage by 28,000 acre-feet for flood control and irrigation water supply. Based on feasibility studies completed to date and 1983 Dam Safety Assurance Program evaluation, the proposed enlargement of Success Dam would require a seismic stability buttress added to the upstream face of the dam, which results in an economically infeasible study. The local sponsor believes the 10-foot rise in the gross pool will not affect the safety of the structure. In May 1992, the Corps and local sponsor agreed to issue an interim report and suspend the Tule River feasibility studies pending further seismic analyses of the dam. A technical review conference was held in June 1992 which resulted in the initiation of a post-earthquake stability analysis to verify dam safety conditions. This analysis is scheduled for completion in June 1996.

A meeting between the local sponsor and the District Corps staff regarding an amendment of the Feasibility Cost Sharing Agreement was conducted on January 12 and 13, 1995. During that meeting the Corps District staff agreed to obtain clarification of the need for the extensive rewrite of the 1992 Interim Report and particularly the need for risk-based analysis, reformulation of alternative plans of enlargement for selection of a National Economic Development plan (federally recommended plan), additional detailed economic studies, Micro-Computer Aided Cost Estimating System cost estimate and determination of the environmental impacts and mitigation of only the area of reservoir enlargement instead of the entire Tule River downstream service area.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
201	American River Watershed	Federal	19,200,000	12,742,000	3,000,000	2,223,000	3,500,000	3,500,000
		NonFed	0					
		Total	19,200,000					

CWC 201 - American River Watershed. The Reclamation Board and Sacramento Area Flood Control Agency are seeking federal authorization of a Flood Detention Dam near Auburn to protect Sacramento from a devastating flood from the American River.

When Folsom Dam was constructed by the U.S. Army Corps of Engineers in the 1950s, it was believed to provide approximately 250-year flood protection for the Sacramento area. Just ten years ago, rainstorms in the watershed almost caused a flood of disastrous proportions. The 1986 storm, in conjunction with other large storms which had occurred over the previous 25 years, changed the hydrologic understanding of the basin. Reevaluations of hydrologic conditions within the watershed have now documented that Folsom Reservoir and the downstream levee system provide only an 80-year level of flood protection.

Catastrophic loss of life and billions in property damage in the Sacramento area would result from American River levee failure. The area lying below the levees covers over 100,000 acres and consists of more than 160,000 homes and structures, 400,000 residents and $37 billion in developed property. If floodflows in the American River were to overtop a levee in the Sacramento area, the results would be devastating. Economic damage estimates range from $7 to $16 billion, with depths of flooding up to 20 feet.

The realization of the high flood risk and the disastrous consequences of a levee failure prompted local, State and federal agencies to study the problem and to make plans to significantly increase Sacramento's level of flood protection. Following the February 1986 floods, a series of studies was conducted by the Corps of Engineers, in cooperation with the Board and SAFCA. They were designed to define the flood risks to the Sacramento area, identify potential flood control measures, describe the most feasible ones in detail, and define and present a flood control plan for the area.

The study sequence included a review of hydrologic data (1987), a Feasibility Study (1988-1991), and a Supplemental Information Report (1992-1996). The SIR was prepared to answer questions raised by Congress during the 1992 authorization process, and reflects information and comments from extensive review by both the public and government agencies.

The Corps' economic analyses show that the Detention Dam Plan yields the maximum net economic benefit of all alternatives. It consequently was designated by the Corps as the National Economic Development plan. The nonfederal cost-sharing sponsors (the SAFCA Board and The Reclamation Board) have likewise identified the Detention Dam Plan as the locally preferred plan, because:

- The Detention Dam Plan significantly reduces the flood risk in Sacramento to a level commensurate with other large cities such as St. Louis and Kansas City.
- It is the most cost effective and provides the highest level of economic benefit;
- It can pass the Standard Project Flood (recognized as the standard for protection of urban areas, approximately a 225-year event on the American River) with about 95 percent reliability.
- It provides a high level of protection without additional dependence on the levee system, and thus is considered the safest and most reliable of the three alternatives.

The local sponsors are seeking federal authorization of the Detention Dam Plan in the Water Resources Development Act of 1996 with possible inclusion in the President's 1997 budget. The Director of the

Department of Water Resources has indicated State support for the project before the congressional Subcommittee on Transportation and Infrastructure on February 28, 1996.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
238A	Kaweah River (Tulare)	Federal	3,900,000	0	500,000	148,000	600,000	1,300,000
		NonFed	0					
		Total	3,900,000					
238B	Kaweah River (Seismic)							1,000,000

CWC 238 - Kaweah River - Terminus Dam was authorized by the 1944 Flood Control Act and was constructed by the U.S. Army Corps of Engineers in 1962. The 150,000 acre-feet project was designed to provide a 60-year level of flood protection downstream of the dam. However, revised hydrologic information shows that the existing project provides only about a 46-year level of protection.

Flooding downstream of the dam occurs when flows from individual creeks blend together and form sheet flow through urban and agricultural areas. Included in the flooded area are the communities of Visalia, Farmersville, Tulare, Ivanhoe, and Goshen. Since construction of Terminus Dam, damaging floods have occurred in many years, including 1966, 1969, 1978, 1980, 1982, 1983, and 1986. Downstream communities and areas adjacent to the flood plain are at risk of future flooding.

Initially, a variety of alternatives was evaluated, including alternative storage sites, detention basins, construction alternatives, and nonstructural measures. Based on technical, economic, and environmental criteria, the only feasible alternative is to raise the spillway 21 feet. All the other alternatives were eliminated because (1) they failed to meet the project flood control or water supply goals, (2) the costs exceeded the benefits, or (3) the associated environmental impacts were excessive.

The Corps' recommended project alternative (NED Plan) includes raising the elevation of the existing Terminus Dam spillway from 694 feet mean sea level (M.S.L.) to 715 feet M.S.L.. Reservoir storage capacity would be increased 42,600 acre-feet, and reservoir surface area from 1,913 acres to 2,156 acres. The existing spillway would also be widened from 307 to 455 feet in order to avoid raising the crest of the dam at the increased gross pool level.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
302	Sacramento River Restoration at Glenn Colusa Irrigation District (Glenn)	Federal	10,650,000	2,593,000	300,000	300,000	300,000	1,000,000
		NonFed	3,550,000					
		Total	14,200,000					
622	Hamilton City Pumping Plant Fish Facility (Glenn)	Federal	37,315,000	2,662,270	3,000,000	3,000,000	3,000,000	4,300,000
		NonFed	0					
		Total	37,315,000					

CWC 302 - (Corps) Sacramento River Restoration at Glenn-Colusa Irrigation District and CWC 622 - (USBR) Hamilton City Pumping Plant Fish Facility The Reclamation Board, Department of Fish and Game and the Glenn-Colusa Irrigation District are proceeding with cost-shared environmental documentation for the restoration of the Sacramento River hydraulic gradient and restoration or replacement of the fish screens. The Congress has provided funds and directed the Corps of Engineers to restore a portion of the river to its original configuration so that water supply and fish protection facilities can continue to operate.

An FY95 appropriation of $400,000 has allowed the Corps to participate in physical hydraulic modeling, to continue post-design activities following completion of the design report, to accomplish necessary environmental documentation of the final design, and to prepare plans and specifications for construction. It is our understanding that the Committee report accompanying the House appropriations bill directed that costs incurred for the interim screening measure be included as part of state-federal cost-sharing.

It is our understanding that the Department of Fish and Game will become the State lead agency as soon as the Draft Feasibility Study EIR/EIS is complete in 1996.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Preliminary Recommendation FY 1997
381	Los Angeles County Drainage Area Project	Federal	204,000,000	10,450,000	11,367,000	10,424,000	15,000,000	50,000,000
		NonFed	108,000,000					
		Total	312,000,000					

CWC 381 - Los Angeles County Drainage Area Project. According to the prepared statement received, the LACDA Alliance, a coalition of seven cities in the Los Angeles and Rio Hondo River floodplains (Bellflower, Carson, Downey, Lakewood, Paramount, Pico Rivera and South Gate), join the County of Los Angeles in seeking funding for an accelerated construction Schedule. According to the County of Los Angeles, the LACDA Project, estimated to cost $312 million, was authorized by Congress in 1992 and received a Record of Decision to proceed from the Assistant Secretary of the Army in 1995. This is estimated to be a seven-year project.

This project will alleviate flooding by increasing the capacity of the lower Los Angeles River, Rio Hondo Channel and Compton Creek. The project will eliminate an estimated $2.3 billion in damages from a 100-year storm for over 500,000 people living in the flood plain.

The first construction contract was awarded in FFY 95. The current FFY has an estimated $10.4 million budgeted. Two construction contracts are expected to be awarded this current fiscal year. Design is underway to support expenditure of $50 million in FY 97.

U.S. BUREAU OF RECLAMATION

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
541	California Water Augmentation Program	Federal	850,000	0	0	0	300,000	300,000

CWC 541 -California Water Augmentation Program - The purpose of the study would be to present opportunities for addressing California's water related resource needs by optimizing benefits from existing state and federal facilities, improving water management practices (demand reduction, water conservation, etc.) and augmenting existing supplies. A review would be conducted of CVP, SWP and related water resource projects, and State.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
610	Shasta Division							
611	Temperature Control Device - Shasta Dam	Federal	72,963,000	24,226,466	549,000	21,019,000	0	0
		Restoration	7,039,000	8,349,777	11,281,000	16,961,000	3,470,000	3,470,000
		NonFed	0	[illegible]	0	0	0	0
		Total	80,000,000		11,830,000		3,470,000	3,470,000

CWC 611 -Temperature Control Device - Shasta Dam.-A structural water temperature control device will be installed at Shasta Dam to provide better control of river temperatures to assist in recovery actions for anadromous salmonids in the Upper Sacramento River. A construction contract was awarded in November 1994. Construction activities will continue with an anticipated completion date of October 1996.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
612	Coleman National Fish Hatchery Modification	Federal	29,358,000	0	Support	0		
		Restoration	5,335,000	4,295,803		3,133,000	2,000,000	2,000,000
		Total	34,693,000			3,133,000		

CWC 612 - Coleman National Fish Hatchery Modification supplements natural production of anadromous fish in the Upper Sacramento River basin. The Fish and Wildlife Service is currently implementing a plan to rehabilitate and expand the facility so that survival, smolt quality and release size are significantly improved. An additional objective is to provide full treatment of waters entering the hatchery system thus removing or significantly lowering potential for transmission of disease organisms to hatchery fish. This is expected to permit the removal of barriers to migratory salmon in Battle Creek and provide access to upstream spawning gravels.

Construction will continue to be accomplished in phases over several years with actual construction taking place in the spring and summer of each year in order to minimize impacts to the fall and winter spawning and rearing periods. In FY94 rehabilitation of 50-year old rearing ponds, a new primary water line for the ponds, and Phase I water treatment facilities were completed. In FY95 the Phase I water treatment facilities (ozonization) to provide up to 10,000 gallons per minute of treated water will be completed.

In FY96 U.S. Fish and Wildlife Service has agreed to set aside work on Coleman so that funding can be used for the Shasta Temperature Control Device (CWC 611). It is expected that FY97 funding for Coleman will resume.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
620	Sacramento River Division							
621	Winter-Run Chinook Salmon	USBR		725,000	1,100,000	300,000	0	400,000
	Captive Broodstock Program	USFWS		750,000				
	NOAA			975,000				
	NonFed			1,114,940				
	Total		12,616,257	3,564,940				

CWC 621 - Winter-Run Chinook Salmon Captive Broodstock Program - In response to critically low levels of Winter-Run Chinook Salmon in the Sacramento River during 1991, the Winter-Run Chinook Salmon Captive Broodstock Committee was initiated. Once numbering in the hundred of thousands each year, returns had plummeted to 191 fish. In order to save this unique and important salmon stock from extinction, a wide range of State and Federal fishery agencies joined with nongovernmental commercial and recreational fishing interests, as well as interested water users and the academic research community.

As it approaches completion of the first half of its 10-year duration, the Winter-Run Chinook Salmon Captive Broodstock Program has overcome many developmental problems, has efficiently established the infrastructure necessary to continue the program at full production status, and can do so until such time as the necessity for the program no longer exists. Most importantly, this program has helped begin the recovery of this unique stock of salmon.

CWC No.	Project	Estimated Project Costs		Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
624	RBDD Fish Passage Program	Federal	5,163,000	1,794,988	0	1,000,000	500,000	500,000
		Restoration	500,000	500,000				
		NonFed	0	0				
		Total	5,663,000					
626	RBDD Demonstration Research Facility Evaluation	Federal	5,830,000	783,459	0	1,300,000	1,500,000	1,500,000
		Restoration	920,000	920,000				
		Non Fed	0	0				
		Total	6,750,000					

CWC 624 - Fish Passage Program and CWC 626 - Demonstration Research Facility Evaluation. Red Bluff Diversion Dam has been identified as one cause of a continued decline of salmon and steelhead in the Sacramento River to levels roughly 50 percent of the 1953-60 average. The continued decline of the winter-run chinook salmon has prompted its listing as an endangered species.

The Action Program began in 1983 and is a coordinated effort between the Bureau of Reclamation and State and Federal resource agencies. USBR has completed an Appraisal Study and has been evaluating alternatives identified in that study.

USBR also constructed a research pumping plant at the dam, to provide for the evaluation of impacts to fish of different types of pumps (centrifugal and Archimedes screw pumps). Extensive fishery monitoring is to be done to evaluate the pumps' performance. Although the plant is now ready to be put in service, the absence of FY 96 funding would mean that monitoring cannot be conducted.

CWC No.	Project	Estimated Project Costs		Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
646	Rock Slough Fish Screen (Contra Costa)	Federal	5,280,000	0	80,000	80,000	0	1,500,000*

*Support, provided it be funded from Restoration or other money.

CWC 646 - Rock Slough Fish Screen. Contra Costa Water District requested that the Commission support funds for a fish screen at Rock Slough, the intake to the District's water supply. USBR is authorized to fund (federal share 75%) this project under PL 102-575, the Central Valley Project Improvement Act, Section 3406(b)(5). Completion of the screen is required by October 1998 under terms of a subsequent biological opinion issued by the U.S. Fish and Wildlife Service to CCWD as a requirement for its construction of Los Vaqueros Reservoir. The imminent completion date dictates that planning funds be made available in FY96. The Contra Costa Water District feels this is an appropriate use of the Restoration Fund and that the terms of PL 102-575 require the federal government to provide 75 percent of the total cost of the project.

CWC No	Project	Estimated Project Costs		Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Preliminary Recommendation FY 1997
PL 102-575 (Mid-Pacific Region)								
001	San Francisco Area Water Reclamation Study (General Investigation)	Federal	3,690,000	790,000	1,500,000	2,575,000	1,500,000	1,500,000
		NonFed	3,690,000					
		Total	7,380,000					
901	San Jose Area Water Reclamation And Reuse Program (Construction)	Federal	32,500,000	1,715,000	9,000,000	1,505,000	2,740,000	15,000,000*
		NonFed	97,500,000					
		Total	130,000,000					
Lower Colorado Region								
1101	L. A. Area Water Reclamation and Reuse (Includes West Basin, East Valley and Terminal Island)	Federal	68,120,000	14,740,000	9,300,000	9,545,000		20,000,000*
		NonFed	204,360,000					
		Total	272,480,000					
1102	Orange County Regional Water Reclamation Project - Phase I	Federal	42,600,000	0	600,000	0		Support
		NonFed	127,800,00					
		Total	170,400,000					
1101	San Gabriel Basin Project (Includes San Gabriel Basin Demo, Rio Hondo & San Gab Valley Wtr Recl.)	Federal	38,090,000	10,000,000	9,750,000	6,403,000		5,000,000*
		NonFed	114,270,000					
		Total	152,360,000					

1304	San Diego Area Reclamation (Includes San Diego, Escondido, Poway, Padre Dam Muni WD, Otay WD and San Diego County Water Authority)	Federal NonFed Total	172,590,000 517,770,000 690,360,000	2,875,000	9,000,000	2,692,000		18,000,000*
1305	Water Replenishment District of Southern California	Federal NonFed Total	20,305,000 22,519,000 42,824,000	–	Support	0		Support Authorization
1306	Brackish Water Reclamation Demonstration Facility (Ventura)			-	500,000	1,000,00		2,500,000
1309	Southern California Comprehensive Water Reclamation and Reuse (General Investigations Program)	Federal NonFed Total	3,000,000 3,000,000 6,000,000	828,000	750,000	750,000		750,000

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* Reconsider, after detailed FY 97 President's Budget is released

RECYCLED WATER PROJECTS Title 16 of PL 102-575 authorized the Secretary of Interior to investigate and identify opportunities for reclamation and reuse of municipal, industrial, domestic and agricultural wastewater.

The Commission would like to express its concerns to the Committee regarding the competition for funding between traditional USBR reclamation projects and environmental restoration actions and the large impending funding increase for USBR recycling programs. It is important that we support funding to maintain USBR's existing infrastructure and to address deferred maintenance needs, and to carry out environmental and fishery restoration measures associated with these projects. We are concerned that USBR's new role as a federal banker in cost-sharing in local waste water recycling programs will "break the bank" for the existing federal facilities. While we fully support local agencies' plans to carry out these programs, they are extremely expensive. We encourage thought be given as to how these programs can be funded in a manner that is equitable to USBR's existing infrastructure.

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Final Recommendation FY 1997
U.S. ARMY CORPS OF ENGINEERS								
General Investigations - Surveys								
100A	Lower Truckee River (Washoe County, Nevada)	Federal NonFed Total	790,000 500,000 1,290,000	236,000	–	91,000	300,000	300,000
100B	Lower Truckee River (Pyramid Lake Paiute Tribe)	Federal NonFed	1,355,000 600,000	715,000	–	218,000	300,000	300,000
101	Tehama Hamilton City Flood Control Study (Tehama, Glenn) [Continuing Authority]			0	–	–	125,000	125,000
		Total	1,955,000					
102	Northern California Streams, Sacramento River Fish Migration (Solano, Yolo)	Federal NonFed Total	1,500,000 900,000 2,400,000	550,000	300,000	222,000	300,000	300,000
103	Northern California Streams, Winters and Vicinity (Yolo)	Federal NonFed Total	781,000 240,000 1,021,000	541,000	200,000	159,000	80,000	80,000
105	Northern California Streams - Cache Creek Environmental Restoration	Federal NonFed Total	1,250,000 750,000 2,000,000	350,000	200,000	148,000	300,000	300,000
106	Northern California Streams Maggie Creek (Sacramento) [Continuing Authority]			650,000	–	–	300,000	300,000
107	Northern California Streams, Yuba River Basin	Federal NonFed Total	2,320,000 1,800,000 4,120,000	1,350,000	100,000	124,000	200,000	200,000
108	Northern California Streams Middle Creek	Federal Non Fed Total	1,500,000 900,000 2,400,000		–	222,000	450,000	450,000
112	Sacramento River Watershed Management Study	Federal NonFed Total	2,000,000 1,200,000 3,200,000	--	800,000	--	400,000	400,000
121	Sacramento San Joaquin Delta Investigation	Federal NonFed Total	5,940,000 2,975,000 8,915,000	3,955,000	800,000	543,000	600,000	600,000
122	Sacramento San Joaquin Delta Little Holland Tract	Federal NonFed Total	1,250,000 750,000 2,000,000	189,000	290,000	215,000	300,000	300,000
123	Sacramento San Joaquin Delta Prospect Island (Solano)	Federal NonFed Total	875,000 525,000 1,400,000	381,000	100,000	74,000	200,000	200,000
124	Sacramento San Joaquin Delta Western Delta Islands (Contra Costa, Sacramento)	Federal NonFed Total	1,850,000 1,200,000 3,050,000	626,000	300,000	148,000	450,000	450,000

CWC No	Project	Estimated Project Costs		Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Projected Funding Need FY 1997	CWC Final Recommendation FY 1997
125	Reservoir Flood Release Coordination - San Joaquin River			0	75,000	–	100,000	100,000
130	Friant Dam Enlargement			0	0	–	0	Affirmed
132	San Joaquin River Basin, South Sacramento County Streams	Federal NonFed Total	2,070,000 1,400,000 3,470,000	798,000	500,000	371,000	600,000	600,000
133	San Joaquin River Basin Stockton Metropolitan Area	Federal NonFed Total	1,700,000 1,200,000 3,200,000	–	800,000	296,000	550,000	550,000
135	San Joaquin River Basin, Arroyo Pasajero (Fresno) (Also see CWC 660A)	Federal NonFed Total	3,665,000 2,800,000 6,465,000	1,577,000	700,000	519,000	950,000	950,000
136	San Joaquin River Basin, Pine Flat Dam, Fish and Wildlife Habitat Restoration (Fresno)	Federal NonFed Total	2,025,000 1,500,000 3,525,000	525,000	500,000	371,000	500,000	500,000
137	San Joaquin River Basin, Caliente Creek (Kern)	Federal NonFed Total	2,944,000 1,147,000 4,091,000	2,773,000	171,000	171,000	0	Support
139	San Joaquin River Basin, Tule River	Federal NonFed Total	1,444,000 1,129,000 2,573,000	844,000	200,000	148,000	200,000	200,000
141	Napa River, Salt Marsh Restoration	Federal NonFed Total	1,125,000 675,000 1,800,000	0	–	148,000	450,000	450,000
142	Russian River Environmental Restoration	Federal NonFed Total	1,125,000 675,000 1,800,000	0-	–	74,000	400,000	400,000
152	Upper Guadalupe River (Santa Clara)	Federal NonFed Total	2,974,000 2,494,000 5,028,000	1,999,000	285,000	211,000	500,000	500,000
153	Upper Penitentia Creek (Santa Clara)	Federal NonFed Total	1,415,000 1,100,000 2,515,000	300,000	300,000	222,000	650,000	650,000
171	Lower Mission Creek (Santa Barbara)	Federal NonFed Total	2,799,000 750,000 3,549,000	1,968,000	300,000	60,000	300,000	300,000
180	Central Basin Groundwater Project (Los Angeles)	Federal NonFed Total	1,875,000 1,125,000 3,000,000	750,000	375,000	278,000	400,000	400,000
181	Santa Monica Water Supply				–	–	0	Deferred
182A	Los Angeles County Drainage Water Conservation and Supply (Hansen and Lopez Dams)	Federal NonFed Total	1,270,000 1,120,000 2,390,000	400,000	400,000	296,000	400,000	400,000
182B	Los Angeles County Drainage Water Conservation and Supply (Santa Fe & Whittier Narrows Dams)	Federal NonFed Total	1,360,000 1,210,000 2,570,000	400,000	460,000	341,000	450,000	450,000
183	Water Infrastructure Study for Water System Seismic Reliability (Arcadia) PL 101-60						--	Deferred
185	San Antonio Creek (San Bernardino)	Federal NonFed Total	1,125,000 675,000 1,800,000	300,000	350,000	185,000	200,000	200,000
186	Mission Zanja Creek (San Bernardino) [Continuing Authority]	Federal NonFed Total	1,370,000 870,000 2,240,000	500,000	300,000	0	200,000	200,000
188	Whitewater River Basin (Riverside)	Federal NonFed Total	2,080,000 1,655,000 3,735,000	845,000	370,000	274,000	450,000	450,000
189	San Juan and Aliso Creeks	Federal NonFed Total	1,250,000 750,000 2,000,000	0	–	111,000	400,000	400,000
190	Imperial County Watershed	Federal NonFed Total	1,250,000 750,000 2,000,000	0	–	225,000	400,000	400,000
Preconstruction Engineering and Design								
201	American River Watershed	Federal NonFed Total	19,200,000 0 19,200,000	12,742,000	3,000,000	2,223,000	3,500,000	3,500,000
218A	Kaweah River (Tulare)	Federal NonFed Total	3,900,000 0 3,900,000	0	500,000	148,000	600,000	1,300,000
218B	Kaweah River -Seismic (Tulare)							1,000,000
251	San Clemente Creek	Federal NonFed Total	1,600,000 0 1,600,000	0	150,000	111,000	800,000	800,000

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Final Recommendation FY 1997
252	Napa River Flood Control Project	Federal NonFed Total	12,300,000 0 12,300,000	11,113,000	787,000	583,000	600,000	950,000
253	San Rafael Canal (Marin)	Federal NonFed Total	2,295,000 0 2,110,000	1,762,000	250,000	185,000	350,000	350,000
254	Pajaro River, Watsonville (Santa Cruz)	Federal NonFed Total	1,770,000 0 1,770,000	389,000	500,000	371,000	850,000	850,000
255	San Lorenzo River (Santa Cruz)	Federal NonFed Total	844,000 0 844,000	770,000	100,000	74,000	0	0
284	Seven Oaks and Prado Dams Water Conservation (San Bernardino, Riverside, Orange)	Federal NonFed Total	1,000,000 0 1,000,000			265,000	300,000	300,000
287	Norco Bluffs, Santa Ana River (Riverside)	Federal NonFed Total	1,000,000 0 1,000,000	–	–	–	200,000	200,000
Construction - General								
301	Upper Sacramento River Murphy Slough [1135]	Federal NonFed Total	3,000,000 1,000,000 4,000,000	110,000	500,000	390,000	1,500,000	1,500,000
302	Sacramento River Restoration at Glenn Colusa Irrigation District (Glenn) (Also see CWC 622)	Federal NonFed Total	10,650,000 3,550,000 14,200,000	2,593,000	300,000	300,000	300,000	1,000,000
303	Sacramento River Bank Protection	Federal NonFed Total	159,100,000 62,600,000 221,700,000	89,772,000	3,000,000	2,751,000	6,500,000	6,500,000
304	Sacramento River Flood Control Project	Federal NonFed Total	79,855,000 97,048,000 176,903,000	75,535,000	100,000	92,000	6,500,000	6,500,000
305	Mid Valley Area Levee Reconstruction	Federal NonFed Total	25,700,000 8,700,000 34,400,000	2,752,000	500,000	459,000	2,500,000	2,500,000
306	Marysville/Yuba City Levee Reconstruction	Federal NonFed Total	23,600,000 7,800,000 31,400,000	4,416,000	6,000,000	5,362,000	7,000,000	7,000,000
307	Lower Sacramento Area Levee Reconstruction	Federal NonFed Total	3,450,000 1,140,000 4,590,000	705,800	500,000	459,000	500,000	500,000
309	West Sacramento Project	Federal NonFed Total	15,700,000 5,200,000 20,900,000	2,347,000	7,000,000	6,420,000	7,000,000	7,000,000
310	Yolo Basin Wetlands (Davis site) [1135]	Federal	800,000	281,000	–	469,000	50,000	50,000
311	San Joaquin River China Island Habitat Restoration	Federal NonFed Total	4,500,000 1,500,000 6,000,000	0	500,000	–	500,000	500,000
331	New Melones Lake (Calaveras, Tuolumne)	Federal NonFed Total	400,500,000 0 400,500,000	371,143,000	1,000,000	–	1,000,000	1,000,000
332	Merced County Streams	Federal NonFed Total	85,900,000 38,600,000 124,500,000	15,448,000	700,000	642,000	900,000	900,000
351	Wildcat and San Pablo Creeks (Contra Costa)	Federal NonFed Total	20,170,000 15,530,000 35,700,000	18,360,000	1,240,000	1,137,000	0	0
352	Guadalupe River (Santa Clara)	Federal NonFed Total	63,300,000 74,470,000 137,770,000	38,250,000	8,100,000	7,428,000	12,500,000	12,500,000
353	Coyote and Berryessa Creeks (Santa Clara)	Federal NonFed Total	44,000,000 34,840,000 78,840,000	15,472,000	12,000,000	11,005,000	2,400,000	2,400,000
354	Santa Paula Creek (Ventura)	Federal NonFed Total	20,300,000 1,600,000 21,900,000	8,497,000	4,000,000	2,109,000	5,000,000	5,000,000
381	Los Angeles County Drainage Area Project	Federal NonFed Total	204,000,000 108,000,000 312,000,000	10,450,000	11,367,000	10,424,000	15,000,000	50,000,000
382	Santa Ana River Mainstem	Federal NonFed Total	778,000,000 555,000,000 1,333,000,000	386,659,000	70,249,000	64,818,000	60,000,000	60,000,000
383	San Luis Rey River (San Diego)	Federal NonFed Total	54,700,000 20,400,000 75,100,000	57,700,000	0	0	5,500,000	5,500,000
New	Colusa Basin Drain Drainage System Study							200,000
New	Gunnerson Pond (Riverside)							490,000

CWC No	Project	Estimated Project Costs		Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Final Recommendation FY 1997
New	Santa Margarita River - Reconnaissance Study (Riverside)							200,000
New	Murrieta Creek, Section 22, Planning Assistance (Riverside)							50,000
New	Southern California Infrastructure Restoration Study (Huntington Beach) PL 101-60							Deferred
	U.S. BUREAU OF RECLAMATION							
	General Investigations (Mid-Pacific Region)							
510	San Joaquin River Basin Comprehensive Plan	Federal Restoration NonFed Total	1,262,500 2,715,000 1,600,000 5,577,500	1,141,277 1,642,970	1,000,000	0	0	Deferred
531	Del Norte County/ Crescent City Wastewater Study	USBR	1,000,000	-0-	–	300,000	0	Deferred
532	Fort Bragg Reclamation Study	USBR	1,500,000	-0-	–	500,000	0	Deferred
537	General Planning Studies	Federal	Continuing	177,000	350,000	369,000	350,000	350,000
540	Technical Assistance to States	Federal	Continuing	1,755,000	140,000	131,000	125,000	125,000
541	California Water Augmentation Program	Federal	600,000	0	0	0	300,000	300,000
542	Delta Model Development Group	Federal	490,000	0	0	0	90,000	90,000
543	Friant Upper Basin Optimization Study	Federal	100,000	0	0	0	75,000	75,000
544	Middle San Joaquin River Water Reuse Study	Fed	100,000	0	0	0	60,000	60,000
545	New Melones Temperature Control Eval	Federal	90,000	0	0	0	90,000	90,000
	Construction Projects (Mid-Pacific Region)							
600	Trinity River Restoration Program	Federal	307,105,903	305,802,396	5,000,000	3,767,000	5,000,000	5,000,000
610	Shasta Division							
611	Temperature Control Device - Shasta Dam	Federal Restoration NonFed Total	72,963,000 7,019,000 0 80,000,000	24,226,466 8,349,777 0	549,000 11,281,000 0 11,830,000	21,019,000 16,961,000 0	0 3,470,000 0 3,470,000	0 3,470,000 0 3,470,000
612	Coleman National Fish Hatchery Modification	Federal Restoration Total	29,358,000 5,335,000 34,693,000	0 4,295,803	0	3,133,000 3,133,000	2,000,000	2,000,000
613	Anderson Cottonwood Irrigation District Diversion Dam	Federal Restoration Total	16,315,000 1,100,000 17,415,000	0	200,000	200,000	0 100,000	0 100,000
614A	Restore Spawning Gravel (Locations as needed)	Federal Restoration NonFed	33,015,000 0 0	104,000 0	–	639,000	525,000	525,000
614D	Riparian Habitat	Federal Restoration	2,700,000	0	–	0	0 425,000	0 425,000
615	Clear Creek Restoration	Federal Restoration Total	6,600,000	0	–	100,000	500,000 500,000	500,000 500,000
620	Sacramento River Division							
621	Winter-Run Chinook Salmon Captive Broodstock Program	USBR USFWS NOAA NonFed Total	12,616,257	725,000 750,000 975,000 1,114,940 3,564,940	1,100,000	300,000	0	400,000
622	Hamilton City Pumping Plant Fish Facility (Glenn) (Also see CWC 302)	Federal NonFed Total	37,315,000 0 37,315,000	2,662,270	3,000,000	3,000,000	3,000,000	4,300,000
623	Colusa Basin Drain				750,000	250,000	200,000	200,000
625	RBDD Fish Passage Program	Federal Restoration NonFed Total	5,163,000 500,000 0 5,663,000	1,794,988 500,000 0	0	1,000,000	500,000	500,000
626	RBDD Demonstration Research Facility Evaluation	Federal Restoration Non Fed Total	5,830,000 920,000 0 6,750,000	783,459 920,000 0	0	1,300,000	1,500,000	1,500,000
627	Central Valley Project Improvement Act Supporting Investigations	Federal Restoration Total	1,700,000 3,300,000 5,000,000	0 1,584,000 1,584,000	0 1,500,000 1,500,000	0 3,098,000 3,098,000	0 1,000,000 1,000,000	0 1,000,000 1,000,000
629	Deer Fencing	Federal	1,443,000	737,000	–	175,000	200,000	200,000
630	Auburn-Folsom South Unit (Includes American River Study and On-going Activities)	Fed NonFed Total	2,335,830,000 2,350,000 2,338,180,000	356,668,966 2,350,000	1,357,000	1,410,000	2,500,000	2,500,000
631	Stony Creek	USBR	883,000	133,000	–	100,000	0	0
640	Delta Division							
641	Georgiana Slough Fish Barrier	Federal NonFed	950,000 1,510,000	750,000	0	0	0	0
642	Suisun Marsh Protection ($1 million included in FY96 O&M budget - CWC 701)	Federal NonFed Total	60,574,000 90,000,000 151,000,000	29,468,493	300,000	300,000	1,000,000	1,000,000
643	Delta Support Program (IESP)	Federal NonFed	50,467,387	21,692,391	3,200,000	3,000,000	3,500,000	3,500,000

CWC No	Project		Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Final Recommendation FY 1997
611	Bay/Delta Oversight (CalFed)	Federal	10,000,000	400,000	2,500,000	2,500,000	4,100,000	4,100,000
		NonFed	10,000,000					
615	South Delta Barriers	Federal	20,000,000	243,071	500,000	200,000	0	0
		NonFed	20,000,000	7,200,000				
616	Rock Slough Fish Screen (Contra Costa)	Federal	5,280,000	0	80,000	80,000	0	1,500,000'
617	Tracy Fish Facility Improvements	Federal	39,728,000	925,000	–	0	0	0
		Restoration	1,450,000					
650	San Joaquin Division							
651	Land Retirement	Federal	46,593,000	1,228,000	0	0	1,955,000	1,955,000
		Restoration	11,874,000	5,400,000	6,118,000	6,118,000	2,000,000	2,000,000
		Total	58,467,000		6,118,000	6,118,000	3,955,000	3,955,000
652	San Joaquin Basin Action Plan (Kesterson Mitigation)	Federal	13,787,000	0	0	0	1,000,000	1,000,000
		Restoration	13,037,000	5,980,527	1,000,000	1,473,000	1,000,000	1,000,000
		Total	26,824,000	5,980,527	1,000,000	1,473,000	2,000,000	2,000,000
653	Water Acquisition	Federal	43,413,000	0	0	0	1,737,000	1,737,000
		Restoration	7,587,000	22,642,521	11,005,000	23,685,000	6,980,000	6,980,000
		Total	51,000,000	22,642,521	11,005,000	23,685,000	8,717,000	8,717,000
660	San Luis Unit - CVP							
660A	Arroyo Pasajero Studies (Also see CWC 135 - Corps)	USBR	1,151,000	236,000	225,000	225,000	500,000	870,000
		Corps						
		NonFed						
		Total	4,666,000					
660B	Arroyo Pasajero (Land Purchases)	USBR	5,158,000	4,258,000	–	0	0	0
		Corps						
		NonFed						
		Total	12,495,000					
660C	Real Time Drainage Mgmt Init San Luis Drain	USBR	8,007,000	5,107,000	--	200,000	800,000	800,000
660D	Lead Reduction Project	USBR	5,282,000	100,000	100,000	100,000	2,000,000	2,000,000
660E	Controlled River Drainage - Monitoring	USBR	32,275,000	0	275,000	275,000	600,000	600,000
660F	Controlled River Drainage - Drainwater Control Facilities	USBR	22,800,000	0	--	0	0	0
660G	Controlled River Drainage-Lead Reduction	USBR	18,300	0	--	0	1,000,000	1,000,000
661	Real Time Management Demonstration				300,000	--	800,000	800,000
670	Miscellaneous Project Programs (Mid Pacific Region)							
671	Anadromous Fish Program	Federal	12,000,000	0	0	0	0	0
		Restoration	4,570,000	3,133,316	3,000,000	3,512,000	8,000,000	8,000,000
		Total	16,570,000	3,133,316	3,000,000	3,512,000	8,000,000	8,000,000
672	Central Valley Assessment/ Monitoring Program	Federal	17,800,200	0	0	0	0	0
		Restoration	2,035,000	3,038,000	2,000,000	2,275,000	2,312,000	2,312,000
		NonFed			0	0	0	0
		Total	19,835,000	3,038,000	2,000,000	2,275,000	2,312,000	2,312,000
673	Flow Fluctuation	USBR	1,706,000	0	–	270,000	0	0
		Restoration		74,000		50,000	0	0
676	Dedicated Project Yield	Federal	950,000	0	0	0	0	0
		Restoration	550,000	1,405,599	375,000	1,009,000	450,000	450,000
		Total	1,500,000	1,405,599	375,000	1,009,000	450,000	450,000
677	Ecosystem Water Modeling Studies	Federal	7,600,000	0	1,900,000	0	950,000	950,000
		Restoration	1,950,000	1,769,982	0		0	0
		NonFed		0	0		0	0
		Total	9,550,000		1,900,000		950,000	950,000
679	Private Wetland Investigation	Federal	50,000	0	0			
		Restoration	1,050,000	0	500,000	1,200,000	950,000	950,000
680	Kaweah River Delta Corridor Enhancement Project	Federal	1,000,000		0	0	–	100,000
681	Ongoing Contracts/CWPSC/Melones	Federal	9,354,000	2,765,000	3,089,000	3,089,000	2,500,000	2,500,000
683	Refuge Water Supply	Federal	49,696,000	0	0	0	3,990,000	3,990,000
		Restoration	3,310,000	3,883,139	3,000,000	3,033,000	3,000,000	3,000,000
		NonFed	0	0	0	0	0	0
		Total	53,006,000	3,883,139	3,000,000	3,033,000	6,990,000	6,990,000
684	Refuge Wheeling Costs	Federal	11,300,000	0	0	0	0	0
		Restoration	2,400,000	2,449,305	1,700,000	2,110,000	2,000,000	2,000,000
		NonFed		0	0	0	0	0
		Total	13,700,000	2,449,305	1,700,000	2,110,000	2,000,000	2,000,000
685	Coho Salmon Program	Federal	150,000	150,000	0	0	0	250,000
686	Spring Run Salmon Program	Federal	300,000	300,000	0	0	0	250,000
687	Salmon Stamp Program	Federal	100,000	100,000	0	185,000	0	500,000
688	Fish Screen Program	Federal	27,119,000	3,882,000	6,000,000	7,197,000	3,000,000	3,000,000
		Restoration	616,951	643,956			2,000,000	2,000,000
		NonFed	0	0				
		Total	28,119,000	4,525,956				
689A	Reclamation District 108	Federal	1,100,000	450,000	650,000	620,000	0	650,000
689B	Reclamation District 1004	Federal	430,000	215,000	215,000	185,000	0	215,000
	Operation and Maintenance (Mid Pacific Region)							
701	Central Valley Project	Federal	Continuing	–	67,739,000	58,336,600	57,722,000	57,722,000
703	Reclamation Law Administration	Federal	Continuing	1,207,000	1,530,000	1,248,000	1,149,000	1,149,000
704	Land Resources Management Program	Federal	Continuing	512,000	1,254,000	685,000	1,217,000	1,217,000

CWC No	Project	Estimated Project Costs	Actual Costs Through 9/30/95	CWC Final Recommendation FY 1996	Tentative Work Allowance FY 1996	Estimated Funding Level FY 1997	CWC Final Recommendation FY 1997
705	Cachuma Project	Federal Continuing	750,000	716,000	691,000	1,153,000	1,153,000
706	Orland Project	Federal Continuing	130,000	601,000	562,000	570,000	570,000
707	Solano Project	Federal Continuing	1,600,000	2,172,000.	1,732,000	1,851,000	1,851,000
Loan Projects (Westwide)							
800	Small Reclamation Projects Admin	Federal Continuing		600,000		425,000	425,000
Loan Projects (Mid-Pacific Region)							
801	Castroville Seawater Intrusion Project (Monterey)	Federal 32,600,000 USBR funds Treasury Funds NonFed 10,914,000 Total 43,514,000	1,500,000	2,710,000 <1,500,000> <1,210,000>	1,500,000	1,490,000	1,490,000
802	Salinas Valley Reclamation Project (Monterey)	Federal 20,544,000 USBR funds Treasury funds NonFed 6,900,000 Total 27,444,000	1,100,000	1,980,000 <1,100,000> <880,000>	1,100,000	1,000,000	1,000,000
PL 102-575 (Mid-Pacific Region)							
901	San Francisco Area Water Reclamation Study (General Investigation)	Federal 3,690,000 NonFed 3,690,000 Total 7,380,000	790,000	1,500,000	2,575,000	1,500,000	1,500,000
903	San Jose Area Water Reclamation And Reuse Program (Construction)	Federal 32,500,000 NonFed 97,500,000 Total 130,000,000	1,715,000	9,000,000	1,505,000	2,740,000	15,000,000[3]
General Investigations (Lower Colorado Region)							
1001	Colorado River Water Quality Improvement Feasibility Investigation (LC only) ($15,000 in CA in FY 95)	Federal 9,465,000	7,657,113	75,000	40,000		Support
1002	Environmental and Interagency Coordination Activities	Federal Continuing	11,345,237	100,000	45,000		Support
1003	General Planning	Federal Continuing	276,000	373,000	274,000		Support
1004	Imperial Valley Water Reclamation and Reuse Study	Federal 500,000 NonFed 500,000 Total 1,000,000	0	175,000	175,000		Support
1005	Investigation of Existing Projects	Federal Continuing	358,076	50,000	29,000		Support
1007	Minor Work on Completed Projects	Federal Continuing	380,067	55,000	39,000		Support
1008	Salton Sea Area Study	Federal 300,000 NonFed 200,000 Total 500,000	200,000	100,000	100,000		Support
1009	Technical Assistance to States	Federal Continuing	1,828,918	265,000	213,000		Support
1010	Lower Owens River Environmental Study	Federal 300,000 NonFed 300,000 Total 600,000	0	100,000	0		Support
1011	Malibu Creek Fishery Enhancement Study	Federal 250,000 NonFed 250,000 Total 500,000	0	50,000	0		Support
1012	Indian Water Management Study	Federal 200,000	0	75,000	0		Support
1013	Southern California Coastal Water Supply Study	Federal 750,000 NonFed 750,000 Total 1,500,000	0	50,000	50,000		Support
Operations and Maintenance (Lower Colorado Region) (CWC supported the recommendations of the Colorado River Board for following O&M projects)							
1101	Parker Davis Project ($1,066,000 in CA in FY 95)	Federal Continuing	3,301,000	4,101,000	4,101,000		Support
1102	Yuma Area Projects ($6,613,000 in CA in FY 95)	Federal Continuing	21,912,000	21,332,000	21,332,000		Support
Loan Projects (Lower Colorado Region)							
1201	Eastern Municipal Water District Water Facilities Plan (Riverside)	Federal 31,100,000 USBR funds Treasury funds NonFed 13,621,400 Total 44,721,400	22,202,422 <10,432,000> <11,770,422>	6,000,000 <2,200,000> <3,800,000>	6,000,000 <2,200,000> <3,800,000>		2,900,000
1202	Chino Basin Desalination (Santa Ana Watershed Project Authority)	Federal 32,064,000 USBR funds Treasury funds	1,878,000	2,717,000 <1,100,000> <1,617,000>	2,717,000 <1,100,000> <1,617,000>		2,000,000 <1,000,000> <1,000,000>
1203	San Sevaine Creek Water Project (San Bernardino, Riverside)	Federal 51,976,594 NonFed 30,871,816 Total 82,848,410	--	250,000	0		Support

PREPARED STATEMENT OF THE RECLAMATION BOARD, THE RESOURCES AGENCY, STATE OF CALIFORNIA

1997 Summary
(In $1,000)

CORPS OF ENGINEERS' PROJECTS	Page	Board Recommends
1. General Investigations - Surveys		
A Northern California Streams		
-- Tehama-Hamilton City Flood Control Study (Tehama, Glenn)	2	125,000*
-- Winters and Vicinity (Yolo)	2	80,000
-- Cache Creek Environmental Restoration	2	300,000
-- Yuba River Basin	3	200,000
-- Sacramento River Watershed Management Study	3	400,000
-- Colusa Basin Drain Drainage System Study	3	200,000
B Sacramento-San Joaquin Delta		
-- Sacramento-San Joaquin Delta Investigation	4	600,000
-- South Sacramento County Streams	4	600,000
-- Western Delta Islands (Contra Costa, Sacramento)	4	450,000
C San Joaquin River Basin		
-- Arroyo Pasajero (Fresno)	4	950,000
-- Stockton Metropolitan Area	4	550,000
II Preconstruction Engineering and Design		
A American River Watershed	5	3,500,000
B Kaweah River (Tulare)	5	1,300,000
(Seismic)		1,000,000
III Construction - General		
A. Marysville/Yuba City Levee Reconstruction	5	7,000,000
B Merced County Streams	5	900,000
C. Sacramento River Bank Protection	5	6,500,000
D Mid-Valley Levee Reconstruction	6	2,500,000
E. Lower Sacramento Area Levee Reconstruction	6	500,000
F Sacramento River Flood Control	6	500,000
G Sacramento River at Glenn-Colusa Irrigation District (Glenn)	6	1,000,000
H Upper Sacramento River - Murphy Slough	6	1,500,000**
I China Island Habitat Restoration	7	500,000**
J West Sacramento	7	7,000,000
K. Yolo Basin Wetlands (Davis Site)	7	50,000**
L Magpie Creek (Sacramento)	7	300,000*

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*The Board supports this project to be funded under the 'Continuing Authorities' Program (Section 205).
**To be funded under 'Project Modifications for Improvement of the Environment' Program (Section 1135).

The Reclamation Board, as the State agency which furnishes required local assurances for a majority of the federal flood control projects in California's Central Valley, respectfully submits this statement of support for the following projects.

The projects described below are of particular importance to the health, safety, and well-being of Central Valley residents and are important to The Reclamation Board to see that they are started and/or kept on schedule.

I **General Investigations - Surveys**

A. Northern California Streams

This survey, authorized in 1962, is a study of the Sacramento River and its tributaries in regard to flood control measures. The following are interim study proposals for funding in Fiscal Year 1997.

tributaries causing extensive urban and agricultural damage. Also, moderately high stages in the Sacramento River prevent gravity flow from the drain to the river causing widespread flooding in the basin.

The Board recommends funding to initiate this study.

B. Sacramento-San Joaquin Delta

Sacramento-San Joaquin Delta Investigation

The study area is located in Sacramento, Yolo, San Joaquin, Contra Costa, and Solano Counties and extends from the southern limits of the City of Sacramento to Tracy, and from the City of Stockton west to Suisun Bay. The area consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways, which are confined by 1,100 miles of levees. A critical need for levee rehabilitation throughout the Delta exists. The most recent levee failures in the study area were in February 1986, which caused damages estimated at $17 million.

The study is developing a region-wide plan for Corps involvement in the Delta that links with the planning efforts of other agencies and includes flood control, environmental restoration, and navigation.

The Board supports funding to continue this study.

South Sacramento County Streams

These streams are located in the southerly portions of the City of Sacramento and County of Sacramento. The existing flood control projects in Sacramento do not adequately address the flood issues in this rapidly developing area. Levees along Morrison Creek and tributaries provide less than a 100-year level of flood protection. The investigation also addresses the risk of flooding of the Sacramento Regional Wastewater Treatment Plant. Potential projects include a combination of channel and levee improvements and detention facilities.

The Board recommends funding to continue this study.

Western Delta Islands (Contra Costa, Sacramento)

The study area consists of Twitchell Island in the Western Delta area in Sacramento County. This island is at risk of flooding due to levee instability. Failure of this island could cause saltwater intrusion far into the Delta rendering the water unsuitable for agricultural and domestic uses and further adversely impacting existing invaluable fish and wildlife habitat. The study will emphasize both flood damage prevention and environmental restoration.

The Board recommends funding to continue this study.

C. San Joaquin River Basin

This survey, authorized in 1964, will investigate the problems of flood control, irrigation, municipal water supply, power, recreation, and fish and wildlife. Flooding is a major problem and during the severe floods of 1969, 1983, and 1986, the area experienced extensive damages. The following are interim studies supported for funding in Fiscal Year 1997.

Arroyo Pasajero (Fresno)

A feasibility study is underway for the Arroyo Pasajero watershed near Coalinga, California in southwest Fresno County. Updated hydrologic and sedimentation studies now reveal that both the estimated sediment loads and storm volumes are several times greater than original design estimates. There are several public facilities in the floodplain including the California Aqueduct, Lemoore Naval Air Station, Interstate 5, and Highway 198. The lands east of the California Aqueduct are subject to flood damage as well as the Aqueduct.

The Board recommends funding to continue this study.

Stockton Metropolitan Area

The study area is located in the City of Stockton and vicinity within portions of Calaveras, San Joaquin, and Stanislaus Counties. The study area extends from the Calaveras River, Mormon Slough, and Bear Creek and tributaries area north of Stockton to the Littlejohns Creek and Farmington areas southeast of Stockton The reconnaissance study will determine if a federal flood control interest exists. The study will also examine a request to transfer ownership of Farmington Dam to the Stockton East Water District.

Tehama-Hamilton City Flood Control Study (Tehama, Glenn)

The study area will cover two small towns on the west bank of the Sacramento River in Tehama and Glenn Counties. The town of Tehama was flooded in 1986 and some homes were raised. In 1995, the area was flooded again, the homes that did not qualify for raising were again flooded. Hamilton City is protected by a levee that provides inadequate protection. This area received emergency sandbagging in 1986 and in 1995. The Corps will initiate a feasibility study in early calendar year 1996 under Section 205 authority.

The Board recommends continued funding under Section 205.

Winters and Vicinity (Yolo)

The study area is in southwestern Yolo County approximately 30 miles west of Sacramento. The City of Winters is located along Putah Creek and Dry Creek and is bordered to the north by Moody Slough and Chickahominy Slough. Flooding in the area is due to the inadequate flow capacity of Moody and Chickahominy Sloughs and overland flows diverted south by I-505. The 1995 floods caused approximately $2.2 million in damages including flooding of 45 residential properties. Feasibility level studies, initiated in February 1996, will include an evaluation of a levee and canal improvement project to provide at least 100-year level of flood protection to the City of Winters. The study is scheduled for completion in December 1996.

The Board recommends continued funding for feasibility study completion and initiation of preliminary engineering and design.

Cache Creek Environmental Restoration

The Cache Creek basin is about 15 miles northwest of Sacramento, California, and contains about 1,150 square miles of drainage area. The Cache Creek riparian corridor is about 107 miles long and includes the Cache Creek mainstem from the settling basin to the outlet channel of Clear Lake, North Fork Cache Creek, and Bear Creek. The riparian corridor has been severely degraded as a result of multiple activities and development along the creek. The reconnaissance report, completed in December 1995, identified three environmental restoration alternatives: (1) a riparian corridor restoration plan; (2) a riparian corridor restoration plan plus a floodway plan to provide at least 100-year flood protection to the City of Woodland and town of Yolo; (3) a multi-objective corridor management plan that includes of the previous alternatives plus long-term restoration measures to establish a perennial stream. Local government has stated its intent to cost share feasibility level studies.

The Board recommends funding to initiate the feasibility study.

Yuba River Basin

The Yuba River Basin is located approximately 60 miles north of Sacramento. The 1986 flood and the resulting levee failure made evident that flooding is a public safety issue in this area. Thus, a reconnaissance-level study of alternatives for flood control and related purposes in the Yuba River watershed was completed, and a cost-shared feasibility study was initiated.

The Board recommends funding for completion of the feasibility study and initiation of Preconstruction Engineering and Design.

Sacramento River Watershed Management Study

The Board, by Resolution No. 95-4 dated February 17, 1995, requested the Corps to initiate a new study to evaluate the full Sacramento River Flood Control Project. Working in cooperation with other federal and State agencies and public interests, this reconnaissance study will lead to a comprehensive watershed management plan that considers flood control project modification or reconfigurations and evaluates opportunities to restore environmental conditions. The plan will be coordinated and/or integrated with existing studies and activities such as the Sacramento River Bank Protection Project and the Upper Sacramento River Fisheries and Riparian Habitat Management Plan.

The Board recommends funding to initiate this study.

Colusa Basin Drain Drainage System Study

The Colusa Basin Drainage District has requested the Corps to conduct a reconnaissance study of water resource problems of the Colusa Basin Drain and tributaries located about 50 miles northwest of Sacramento. Flooding problems in the basin are due to inadequate channel capacities of the drain and

The Board recommends funding to continue this study.

II. Preconstruction Engineering and Design

A. American River Watershed

The Board and the Department of Water Resources acted as the nonfederal sponsor for the Feasibility Study on the American River Watershed which has been completed. Supplemental information has been developed and the Division Engineer's recommendations were recently released. The proposed project will increase flood protection to the greater Sacramento area.

The Board recommends funding to continue preliminary engineering and design.

B. Kaweah River (Tulare County)

The study is to evaluate the feasibility to provide additional storage at Lake Kaweah (Terminus Dam) for increased flood protection ($1,300,000). Seismic stability is a concern and a separate study ($1,000,000) is needed.

The Board recommends funding for preconstruction engineering and design and seismic analysis.

III Construction - General

A. Marysville/Yuba City Levee Reconstruction

The Sacramento River Flood Control Project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941.

This program will reconstruct 44 miles of the 134 miles of levees which protect the Marysville/Yuba City area The program will be cost shared with a number of local agencies. A Project Cooperation Agreement was executed in July 1994. The first of three construction contracts was awarded in July 1995.

The Board recommends funding for continued construction.

B. Merced County Streams

This project, authorized in 1970, will provide flood protection for the City of Merced and adjacent suburban and agricultural lands. Castle Dam has been completed. Funds are for preparing engineering and environmental documents leading to construction of additional proposed flood protection improvements for Merced.

The Board recommends funding for continued construction activities.

C. Sacramento River Bank Protection

The project, authorized in 1960, is a long-range federal-State effort to preserve the existing project levee system of the Sacramento River. These existing levees offer flood protection along 192 miles of the Sacramento River between Collinsville (in the Delta) and Chico Landing. The Sacramento River Bank Protection Project work consists of providing some form of bank stabilization at those points which are identified each year as the most critical. Emphasis is currently on erosion control work along the American River.

The Board recommends funding for continued construction.

D. Mid-Valley Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sutter and Yolo Counties in north-central California. The area includes the Sacramento River, Knights Landing Ridge Cut, and Sutter Bypass and the communities of Knights Landing and Robbins. An evaluation of about 240 miles of the Sacramento River Flood Control Project levees in the Mid-Valley area identified about 20 miles of levees that are structurally deficient and require reconstruction.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction currently scheduled for June 1996.

The Board recommends funding to initiate construction.

E. Lower Sacramento Area Levee Reconstruction

The project is located within the boundaries of the Sacramento River Flood Control System in Sacramento County in north-central California. The area includes the lower Sacramento River and its distributary sloughs and the town of Clarksburg. An evaluation of about 295 miles of the Sacramento River Flood Control Project levees in the Lower Sacramento area identified about 47 miles of levees that are structurally deficient. The project includes reconstructing about 2 miles of these levees.

The Board will act as the local sponsor for reconstruction work. A Project Cooperation Agreement will be executed prior to initiation of construction.

The Board recommends funding for construction activities.

F. Sacramento River Flood Control

This project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937, and 1941. The project comprises a comprehensive system of levees, overflow weirs, drainage pumping plants, and flood bypass channels, extending along the Sacramento River from Collinsville to Chico Landing. Levees in the Upper Sacramento Area were evaluated and 12 miles determined to be deficient and requiring reconstruction.

The Board recommends funding for construction.

G Sacramento River at Glenn-Colusa Irrigation District (Glenn)

This project involves restoration of the hydraulic characteristics of the main channel of the Sacramento River. The Corps is conducting the engineering and design of works to restore the elevation of the Sacramento River in the vicinity of the Glenn-Colusa Irrigation District intake to conditions existing prior to the flood of 1970 to complement fish screen remedial work being developed by the U.S. Bureau of Reclamation under the Central Valley Project Improvement Act.

The Board recommends funding for initiating construction activities.

H. Upper Sacramento River - Murphy Slough

The congressional direction for the Upper Sacramento Fish and Wildlife Habitat reconnaissance study focussed on environmental restoration rather than an integrated flood plan. While we still believe flood control is an integral part of necessary studies, we support the study results.

It is recommended that a demonstration project for river restoration in accordance with Section 1135 of WRDA 1986 be developed on the upper Sacramento River near Murphy Slough. The site has been selected from the present reconnaissance study. State funding may be available providing the 1135 project is a restoration effort related to the Sacramento River Flood Control Project.

The Board recommends funding for this project.

I. China Island Habitat Restoration

As an outgrowth of the reconnaissance report on the San Joaquin River Mainstem study, it is strongly urged that a separate environmental restoration project be developed substantially consistent with the Section 1135 of the WRDA 1986 program. The locally preferred restoration site is known as China Island and would involve restoring historic wetlands and riparian habitat on about 3,300 acres of land southwest of the San Joaquin River above its confluence with the Merced River.

The Board recommends funding for this project.

J. West Sacramento

The Board is the nonfederal sponsor for the West Sacramento flood control project which was authorized for construction by WRDA 1992.

The Board supports funding to continue construction.

K. Yolo Basin Wetlands (Davis Site)

The project area is located next to the Yolo Bypass which is an operative feature of the Sacramento River Flood Control Project. The Yolo Bypass extends 43 miles from Fremont Weir on the Sacramento River, south to the town of Rio Vista where it rejoins the river. The Davis site will be 396 acres of mostly permanent wetlands.

The project was initiated in 1991 with funds added by Congress to the Fiscal Year 1991 Appropriations Act.

The Board recommends funding for continuing construction.

L. Magpie Creek (Sacramento)

Magpie and Don Julio Creeks are located in Sacramento County, McClellan AFB and City of sacramento. The flood control project will consist of channel improvements to increase the level of flood protection within the City and County of Sacramento. The Feasibility Study is scheduled to be completed in mid-FY-96. The flood control project will tie into flood control improvement work on McClellan AFB, which is scheduled to finalize design and start construction on-base in FY-97.

The Board recommends funding for construction.

PREPARED STATEMENT OF EDWARD HORTON ON BEHALF OF THE PLACER COUNTY WATER AGENCY

On behalf of the Placer County Water Agency I respectfully submit, as Chairman, the following testimony regarding water resource related issues facing Placer County upon which the Subcommittee is in a position to consider action and in particular support for Congressman John Doolittle's legislation for an expandable, multi-purpose Auburn Dam on the North Fork American River. I appreciate this opportunity and your consideration of my comments.

MULTI-PURPOSE AUBURN DAM

The Placer County Water Agency has supported the construction of a multi-purpose Auburn Dam for 30 years. This project is vital to the interests of the Placer/Sacramento region, the State of California and the United States Government.

(1) New Flood Control:

The greater Sacramento area is at serious risk of being flooded under 5' to 20' of water someday if proper steps are not taken soon. Sacramento has the lowest level of flood protection for any community of its size in the nation. Only a multi-purpose dam at Auburn can provide an adequate level of protection. The other alternatives for flood control not only provide significantly less protection but adversely impact the region's water supply as well, increasing the divisiveness between environmental values and economic prosperity. The U.S. Corps of Engineers, The California Reclamation Board and Sacramento Area Flood Control Agency support a flood control facility at Auburn.

(2) New Water Supply:

The Bureau of Reclamation has just released a comprehensive study of the water needs in the region to be served by Auburn Dam that shows a need for an additional 500,000 acre feet by the year 2030. On a statewide basis, the California Department of Water Resources predicts a shortage, ranging from 4 million acre feet per year to 9 million acre feet per year in 30 years. In addition, recent studies show that both the Lower American River and the Bay-Delta System need vast amounts of additional water for a variety of purposes. With a dam being the only effective solution to the flood control problem, future expandability of the structure to a multi-purpose project is critical to solving some of the water problems of the region, State and Federal governments.

(3) Interim Pumping Facilities:

The Placer County Water Agency constructed the Middle Fork American River Project, including two major reservoirs, five powerhouses and diversion facilities for its water rights at Auburn in the mid 1960's.

The Agency, at the request of the Federal government, eliminated the construction of a third major storage reservoir and hydroelectric plant to be known as the American Bar Dam and Reservoir, from our Middle Fork Project. This concession was done to allow the Federal government to make room for a 2.3 million acre feet, multi-purpose Auburn Dam and Reservoir.

In exchange the Bureau entered into a CVP contract obligation to provide the Agency 117,000 acre feet a year of water from the North Fork American River. Another agreement provided for the Bureau to remove the Agency's existing initial permanent pump station and facilities for pumping water to the inlet of the Agency's existing Auburn Diversion Tunnel. The tunnel built 30 years ago is 250 feet above the American River near the proposed Auburn Dam site. The tunnel is three miles long, 12 feet in diameter and has a capacity of 450 cubic feet per second to supply water for the municipal, industrial and agricultural needs in Placer County.

Today, the Agency requires year round, reliable access to our American River water holdings. The United States is under contract to the Agency to provide the Agency access to its American River water. To meet this obligation the Bureau of Reclamation installs a replacement pump station annually with a temporary, non-reliable, non-year round pumping facility. Not only does this temporary facility cost hundreds of thousands of Federal government dollars annually, but it must be removed each winter to avoid even further damage due to annual flooding of the pump site. This annual removal leaves the Agency without a reliable water supply for many months each year.

The Bureau has completed a preliminary concept design for the replacement of the Agency's American River Pump Station and Congressman Doolittle has included funding for the interim facility in his Auburn Dam legislation.

(4) State Highway 49 Road and Bridge Alignment and Relocation:

The relocation of State Highway 49 along with the improvement of existing connecting roads and intersections to handle the redirected traffic is an essential part of the Auburn Dam project. The Agency and the County of Placer support the provisions contained in Congressman Doolittle's proposed Auburn Dam legislation regarding this matter.

(5) Folsom Dam Safety and Reservoir Re-operations:

Folsom Dam and Reservoir (Folsom) on the American River has the highest ratio of average annual runoff to storage capacity of any reservoir in the CVP system. From 1956 to 1986, Folsom functioned as a multi-purpose project providing high levels of water supply, recreation and power, as well as flood control within the watershed. The Folsom State Park was California's most popular recreation area until the flood of 1986 and subsequent re-operation drastically changed its function. Since Folsom was designed in the late 1940's, the hydrologic record has shown much higher average and flood flows than originally thought. Today, because Folsom has such a high probability of refilling, it is regularly drained to meet new demands for Sacramento flood control and early year Delta environmental needs. This operation is well beyond its design intent. The result is that local drought water supply reliability and recreation have been sacrificed and such re-operation must cease with completion of a new Auburn dam.

The Agency recognizes the importance of assuring the safety and reliability of Folsom Dam. Last year's flood gate failure on Folsom Dam was a sharp reminder of the need for periodic safety re-evaluations and improvements as needed, as well as adequate annual preventative maintenance. The Agency supports the provisions contained in Congressman Doolittle's proposed Auburn Dam legislation regarding this matter.

Construction of a multi-purpose Auburn Dam as proposed in Congressman Doolittle's legislation would greatly increase the ability of the American River system to meet all of the demands being placed upon it and still allow for the stabilization of Folsom so it can continue to provide dry year water supply and recreation benefits to Placer County and the Sacramento region.

PREPARED STATEMENT OF DONALD BRANSFORD, PRESIDENT, BOARD OF DIRECTORS, GLENN–COLUSA IRRIGATION DISTRICT

Mr. Chairman, Members of the Subcommittee, my name is Don Bransford. I am a rice farmer from Colusa County, California, and I am President of the Board of Directors of the Glenn Colusa Irrigation District (GCID).

I appreciate the opportunity to testify before you this morning regarding the federal funding priorities for GCID, and I appreciate the Subcommittee's past efforts to address our concerns.

GCID is the largest and one of the oldest diverters of water from the Sacramento River. The District delivers water to approximately 1,200 families who have about 141,000 acres of land in cultivation in Glenn and Colusa Counties.

The agricultural activities supported by the District help sustain an estimated 12,000 jobs in the region and generate $255,000,000 in economic activity per year.

The District is also the sole source of surface water for three wildlife refuges -- the Sacramento, Delevan and Colusa National Wildlife Refuges -- that cover some 20,000 acres in the heart of the Sacramento Valley.

The District is firmly committed to obtaining lasting protection of the winter run salmon and other fishery resources at the Hamilton City Pumping Plant.

Over the last several years, the District has invested over $2,000,000 on the construction of an interim flat-plate fish screen and other improvements to provide immediate protection to the endangered winter-run chinook salmon and other fish species. Since the installation of the flat-plate fish screen, there have been no fish taken at the GCID pumping plant. We are operating under a zero take limit for the winter run chinook salmon, and constant monitoring has revealed no evidence of take having occurred at the plant.

While the new flat-plate screen, installed in late 1993, has been very effective, it is only an interim solution. Permanent protection is needed. Without a new permanent fish screen, the District will continue to face pumping restrictions that will hold water deliveries by the District to just 65 percent of the District's full water entitlement.

And, unlike some other projects authorized in the Central Valley Project Improvement Act (CVPIA), the availability of non-federal cost-sharing is not in doubt at GCID. The District has set aside $5,500,000 to date to help pay for the non-federal, 25 percent cost-share of a new permanent fish screen. We are ready and able to cost share any federal funds provided by this Committee.

On behalf of GCID, the fishery and all of those whose economic fate is tied to the recovery of the winter run salmon, I respectfully request that you provide **$4,300,000 for the Bureau of Reclamation in fiscal year 1997 to advance work on a permanent new fish screen at the Hamilton City Pumping Plant**. I am please, Mr. Chairman, to be able to inform you that, for the first time, the full request is anticipated to be included in the president's budget request.

Specifically, an allocation of $4,300,000 is needed to complete the environmental reviews and the design and engineering work, and to initiate construction on this important project.

According to the state and federal fishery resource agencies, after the completion of the Shasta Temperature Control Device, a new fish screen at the District's pumping plant is among the highest priorities of all of the CVPIA authorized activities.

Without such a commitment of funds, construction will be delayed. That will mean less water for the farmers, a less speedy recovery of the fishery and less revenue for the federal Treasury, all because of reduced water deliveries. Failure to provide the funds necessary to advance the project represents a lose-lose-lose proposition. It is bad for the taxpayers, it is bad for the farmers and it is bad for the fishery resource. Again, I urge you to provide an allocation of $4,300,000 to keep the project moving forward on an optimum schedule.

For the **U.S. Army Corps of Engineers, GCID requests the Committee's support of an appropriation of $1,000,000 to the Corps of Engineers to continue work on the Sacramento River gradient or riffle restoration project**. Construction of the gradient restoration project has become increasingly important. It will improve the safe passage of winter run chinook salmon and other fish in that reach of the Sacramento River by stabilizing the river elevation. This is critical to the effectiveness of what is anticipated to be the preferred alternative for a new fish screen at GCID's pumping plant.

Finally, Mr. Chairman, GCID requests that the Subcommittee earmark, **from within the funds made available for refuge water supply, $2,000,000 to initiate design and feasibility studies to construct a siphon across Stony Creek**. This project will enable the District to make year-round water deliveries to the three National Wildlife Refuges in the GCID service territory as well as make Stony Creek available for possible development as a new site for spawning habitat. It will also allow water deliveries during the winter for crop diversification and to expand the acreage that is flooded for rice straw decomposition and wildlife habitat.

Mr. Chairman, Members of the Subcommittee, on behalf of GCID, I would like to express my appreciation for your past support of our efforts to address the fish bypass problem at the Hamilton City Pumping Plant, and I respectfully request your support once again in the fiscal year 1997 Energy and Water Development Appropriations Act.

Thank you for your consideration.

PREPARED STATEMENT OF PAUL DEVEREUX, DIRECTOR OF ENGINEERING, SACRAMENTO AREA FLOOD CONTROL AGENCY

Dear Mr. Chairman and Members of the Subcommittee;

My name is Paul Devereux, Director of Engineering of the Sacramento Area Flood Control Agency (SAFCA). I am here today representing the SAFCA Board of Directors as well as the City of Sacramento, County of Sacramento, County of Sutter, Reclamation District 1000 and the American River Flood Control District. I am also here representing over 400,000 Sacramentans who live at the confluence of the two major rivers draining much of Northern California–the Sacramento and American Rivers. Together we are soliciting the continued support of this Subcommittee to solve our region's most critical infrastructure problem–adequate flood protection. The recent flooding experienced by our neighbors to the north in Oregon is a reminder of the potential flooding here in Sacramento. Had those storms tracked over Central California - our flood control system would have been tested to the limit and beyond with the potential for a multi-billion dollar disaster.

First of all, I would like to thank the Chairman and Subcommittee members, for their past support of our efforts to protect the citizens and properties of the greater Sacramento urban area. I also urge your Subcommittee to maintain federal support for flood control and oppose efforts to significantly reduce the federal role. The savings over the short term will, over time, lead to greater expenditures from the federal treasury in disaster assistance and result in significant adverse impacts on the national economy.

SAFCA supports the continued funding for the following projects:

1. **American River Project–$3.5 million** for continued Pre-construction, Engineering, and Design to address the most serious flood risk to Sacramento with over 400,000 residents and almost $40 billion of property in the floodplain.

2. **South Sacramento Streams Group–$600,000** for Feasibility Study to address flood risks in South Sacramento where flooding occurred during January 1995.

3. **Magpie Creek (Section 205 Small Project)–$300,000** funding under the Section 205 Program to complete Pre-Construction, Engineering and Design and commence construction as soon as possible.

4. **Sacramento River Bank Protection–$6.5 million** for Pre-construction, Engineering and Design with construction to start as soon as possible to address serious bank erosion adjacent to the American River levees protecting the urban core of Sacramento.

BACKGROUND

No river city in America faces a graver threat of flooding than Sacramento. Without substantial improvement of the existing flood control system, there is about one chance in four that Sacramento will be flooded from the American River over the next thirty years. A home in the floodplain is thus more likely to be damaged by a flood than a fire or an earthquake. Unlike other river communities who have days to raise and strengthen levees in anticipation of flood flows, Sacramento has but a precious few hours to react. The American River Watershed brings runoff very quickly to the only major reservoir on the system - Folsom Dam. The limited flood control space would fill quickly leading to higher flood control releases to the urban areas immediately downstream, protected by miles of earthen levees. The flood will likely be the direct result of either a levee failure or overtopping along the Lower American River. Water levels in the American River, eight to fifteen feet higher than the ground outside the levees, will pour through the gap and spill into the heavily urbanized flood plain.

This community understands its responsibilities to help solve this problem with local resources as opposed to relying strictly on federal funds. Since the record flood of 1986, SAFCA has determinedly pursed a three-pronged program to reduce the risk of flooding in Sacramento: (1) Repair and improve the levees which provide residents of the floodplain with the first line of defense against flood damages; (2) Increase the storage available for flood control at Folsom Reservoir on an interim basis so as to enable dam operators to provide Sacramento with a 100-year level of flood protection until such time as long-term flood control improvements are in place; and (3) Create new flood control storage capacity sufficient to provide a high level of flood protection through the construction of a flood control dam on the Middle Fork of the American River near Auburn. In addition to these structural improvements, the agency has assisted the City of Sacramento in developing an innovative, comprehensive, non-structural floodplain management policy. In pursuit of these initiatives, SAFCA will have spent approximately $90 million in local funds for planning, administration and construction of flood control improvements throughout the Sacramento region by the end of this year.

At this time, we are testifying in support of funding for FY 1997 on the following projects:

1. AMERICAN RIVER PROJECT

SAFCA supports a budget of $3.5 million for continuation of Pre-construction, Engineering and Design (PED) on the American River Project. We also urge authorization by this Congress of the expandable Flood Detention Dam recommended by the Corps of Engineers, State and local government (through SAFCA).

When Folsom Dam was constructed along the American River in the 1950's, it was designed to provide Sacramento a high level of flood protection (in excess of 250-year protection). Over time, the level of protection provided by the reservoir and downstream levees has been continually downgraded as larger than anticipated flood events have descended on the valley. In fact, the five largest floods recorded on the American River have occurred after Folsom Dam was constructed. Finally, after the 1986 flood, the Corps of Engineers have determined that Sacramento has only a 63-year level of flood protection; a far cry from the high level deemed appropriate and thought obtained in 1955 and significantly less than other similarly situated major urban areas around the nation including St. Louis, Kansas City, Dallas, Omaha, Minneapolis, or Pittsburgh.

The American River floodplain is occupied by 400,000 people, 160,000 residential structures, 5,000 businesses and 1,200 government facilities, including the State Capital, with an estimated value of $37 billion. Economic losses from an uncontrolled flood are estimated to range from $7 billion to $16 billion depending on the magnitude of the flood event.

The matter of long-term flood protection for Sacramento is ripe for a decision by Congress. A Chief's Report identifying the Locally Preferred Plan has been available to Congress since 1992. The supplemental information which the Corps was directed to provide is also now available. SAFCA heartily agrees with the principal finding of the National Research Council's Committee on Flood Control Alternatives in the American River Basin which stated; "It is time to select and implement flood risk reduction strategies for the American River basin."

2. SOUTH SACRAMENTO COUNTY STREAMS

SAFCA supports a budget of $600,000 for continuation of Feasibility Studies for a flood control project on the South Sacramento County Streams including Morrison, Laguna, Unionhouse, and Elder Creeks.

The Reconnaissance Study demonstrated the significant risk and yielded a very cost effective flood control project. The flood danger indicated by the study was confirmed by the flood damage of last year. Over 300 homes in South Sacramento were flooded as the swollen creeks could not accommodate the local runoff from nearby subdivisions. The water reached to within a few feet of existing levee tops along the entire system and in some places overtopped spilling water into streets and subdivisions. Worse flooding was averted because the major river systems downstream were not at flood stage allowing the creeks to drain.

SAFCA is the non-federal sponsor for the Feasibility Study. Working with the City and County, we are providing 50% of the $3 million study costs. In addition, to address the serious public safety risk, SAFCA is proceeding with implementing the most critical features of the project in advance of the Corps, using local funds (estimated at $12 million) We will request future credit should a project ultimately be authorized and construction appropriations approved.

3. MAGPIE CREEK (SECTION 205 SMALL PROJECT)

SAFCA supports a budget of $300,000 under the Section 205 Small Projects Program for Magpie Creek. We further request assistance in establishing completion of PED and commencing construction of the Magpie Creek as a priority within that program.

The State and SAFCA are now the non-Federal sponsors for the Corps project which consists of enlarging an existing flood control channel built as a Federal project in the 1950's. With existing hydrologic data, the existing project cannot even contain a 100-year flood. The proposed project has a 2.3 to 1 benefit to cost ratio and can provide approximately 180-year protection. The Corps project joins proposed flood improvements on McClellan Air Force Base which protects existing Base facilities. The local community is urging completion of the on-Base project as part of the eventual privatization of McClellan in order to attract business and industry to that facility. The Secretary of Defense recently announced funding for the on-Base project. Implementation of the work on McClellan requires the downstream Corps project be completed to insure properties are not adversely affected by the higher flows from the Base. Therefore, it is critical the Corps complete the design and commence construction of the Magpie Creek Project as soon as possible to (1) provide the increased flood protection to properties at risk; and (2) not impede the scheduled on-Base improvements. The locals are poised to commence relocation and right-of-way acquisition to expedite the project and reduce the flood risk to residents in the floodplain.

4. SACRAMENTO RIVER BANK PROTECTION (LOWER AMERICAN RIVER LEVEES)

SAFCA supports a budget of $6.5 million for the Corps to address bank erosion which threatens the primary levees along the Sacramento River Flood Control System. In particular, several sites have been identified along the American River below Folsom Dam where continued erosion of the banks could begin to affect the integrity of the adjacent levees as well as destroy valuable habitat. In fact, one of these sites experienced serious erosion in mid-February with the American River running at only one-fourth of its capacity. Within a matter of hours, up to 20 feet of the bank was lost. Only emergency work by the local flood control district prevented further damage including erosion of the levee itself.

The 26 miles of levees, flanking the American River Parkway through the heart of Sacramento, are the difference between flood protection and catastrophy. In addition, the Parkway has become a valuable asset to our community. The natural environmental values and recreational opportunities provided by the Parkway in such close proximity to a major urban area is rarely rivaled across the nation.

The Lower American River Task Force of interested stakeholders including flood control and resource agencies, environmental groups, business leaders and neighborhood groups have succeeded in developing a planning framework within which to carry out bank protection improvements covering about 13,500 lineal feet along some of the most critical reaches of the lower American River. The bank protection would be funded under the existing authorized Sacramento River Bank Protection Project with local cost sharing by SAFCA and the State. Because of the recent problems relayed above, we would like to expedite the process and commence actual construction as soon as possible. A first priority is the erosion site which was fixed temporarily and is in desperate need of permanent bank protection.

In closing, I would like to say the Sacramento community has pulled together in a responsible manner to address our number one infrastructure problem–flood protection. We have, and will continue to spend local funds to identify and implement responsible flood control projects. However, we need the support of the federal government to achieve the long term, high level of flood protection appropriate for the frequency and severity of a catastrophic flood event in Sacramento. We request the Subcommittee's continued support in recognition of our communities efforts to resolve the public safety risk. With your help, we can move one step closer to eventually meeting Sacramento's needs for flood protection.

Once again, thank you for your consideration and support.

PREPARED STATEMENT OF JERRY W. KENNEDY, WASHINGTON REPRESENTATIVE, STOCKTON EAST WATER DISTRICT

I am Jerry Kennedy and I want to thank the committee for the opportunity to provide testimony on behalf of the Stockton East Water District

Stockton East serves over 300,000 people and provides water to 65,000 acres of irrigated farmland The District was formed to solve the serious environmental problems of groundwater overdraft and saltwater intrusion in the Stockton area We built a $23 million treatment plant to reduce these problems by supplying treated surface water In 1983 we entered into a contract with the Bureau of Reclamation for deliveries of Central Valley Project water from New Melones Reservoir on the Stanislaus River We joined with the City of Stockton, the County of San Joaquin, and our neighboring water district to provide $65 million to build a conveyance facility that was completed in 1993 However our requests for water under our contract have been turned down by the Bureau time and time again.

We still face ever increasing problems associated with groundwater overdraft and saltwater intrusion We need a reliable supply of surface water to combat these problems Your Committee provided $400,000 for Fiscal Year 1995 for the American River Folsom South Optimization Study. This study is needed to determine the feasibility of wet year storage at South Gulch or Farmington Dam for flood control and conjunctive use However, we have been told by the Bureau of Reclamation that they are not doing the study or spending the funds. We hope that you will direct the Bureau to get this study underway as part of the New Melones Water Management Study (NMWMS) to determine both the water operations strategy for New Melones and a strategy for conjunctive use with Farmington Dam and South Gulch. We have been told the Federal share of this study is $150,000 with a fifty percent local cost share. We are prepared to participate locally and hope your Committee will see that the Bureau comes up with its share

We again join with Congressman Richard Pombo and the City of Stockton in support of a Stockton Metropolitan Area Study for flood control by the Army Corps of Engineers This $550,000 for Fiscal Year 1997 provides a means of effectively and efficiently managing the water resource while protecting lives and property. A study of the Corps' Farmington Dam will help determine if it feasible to use this facility for wet year storage in addition to the necessary flood control function it serves now

Thank you for your Committee's attention to our problems in the past. I am sure that with your Committee's continued support, we will be able to find, with local level and Federal participation, a reliable water supply for the Stockton area in the future

TESTIMONY OF JERRY W. KENNEDY
March 6, 1996

My name is Jerry Kennedy. I am the Washington Representative for the Stockton East Water District in Stockton, California. I am pleased to have the opportunity to present testimony to this committee concerning Federal funds for projects that are extremely important for our water supply and critical to the long-term survival of our community. Our efforts to obtain a reliable surface water supply for Stockton and San Joaquin County have faced considerable obstacles. The District joined with our neighbor, the Central San Joaquin Water Conservation District, and with the City of Stockton and the County of San Joaquin to build a conveyance facility for water deliveries from the New Melones Reservoir on the Stanislaus River.

The Districts and local governments provided $65 million in local funds to build a system in reliance on contracts with the U.S. Bureau of Reclamation. These contracts provide for the delivery of much-needed water from the Federal Central Valley Project. We requested deliveries in 1993, 1994 and again in 1995. However, these requests for the water under our contracts were turned down by the Bureau. We continue to be rebuffed by the Bureau at every turn in our efforts to get water from New Melones.

A reliable water supply is absolutely essential to correct the saltwater intrusion and groundwater overdraft problems of our area. The Stockton East Water District was established under California law to implement solutions to these serious environmental problems. The District built a $23 million treatment plant to reduce the overdraft on groundwater by supplying treated surface water. The District provides water for both agricultural and municipal purposes, serving approximately 115,000 acres, 65,000 acres of irrigated farm land, and over 300,000 people.

We continue to seek solutions to groundwater overdraft and saltwater intrusion. However, we are faced with alternatives that include Federal involvement and the wise management of Federally-controlled resources. We believe there are cost-effective approaches that will make surface water available to be conjunctively managed with the existing groundwater resources in the Stockton area.

Your Committee has been consistent in its support of our efforts. You provided $400,000 in Fiscal Year 1995 appropriations for the American River Folsom South Optimization Study. We were pleased that the Congress acted to get the Bureau of Reclamation to take a look at this conjunctive use option. However, the Bureau told us by letter that they are not going to do this study because the State pulled out after the Central Valley Project Improvement Act ("Miller-Bradley") was adopted. The Bureau rejected our offer to replace the State as the local participant and told us the funds had been returned to the U.S. Treasury

The American River Folsom South Study still needs to be done as a part of the long-term New Melones Water Management Study (NMWMS) to determine the feasibility of wet year storage at South Gulch or Farmington Dam. Responsible management of the water resource needs to include flood control and conjunctive use. This environmentally friendly approach could enhance flood control while providing water to combat saltwater intrusion in the Stockton area.

Your funding of the American River Folsom South Optimization Study was a step in the right direction. We hope that you will direct the Bureau of Reclamation to begin this study as part of the New Melones Water Management Study (NMWMS). We understand from the Bureau that the Federal share of this study for Fiscal Year 1997 is $150,000 with a 50%-50% cost share. We are willing to participate in the cost sharing of a study that addresses the operations of the New Melones Reservoir in a conjunctive use environment. The California Water Commission voted on March 1 to support the NMWMS if a funding source can be found.

This New Melones Water Management Study will provide a long-term water operations strategy for the New Melones Reservoir and the Stanislaus River basin combined with conjunctive use of existing and new facilities Currently, the Central Valley Project Operations Division of the Bureau is conducting the interim NMWMS that will determine the operations for New Melones for the next one to three years The interim study will carry operations through the current Bay-Delta process.

We believe the long-term study should be a negotiated settlement among the stakeholders to determine long-term operations. The long-term operation should be based on water availability by different year types, existing facilities, new facilities including conjunctive use storage at an enlarged Farmington Dam or at a new 160,000 acre foot reservoir at South Gulch, and the differing demands for agriculture, urban use, and the environment. Data analysis would be to determine how to balance supplies with demand

We join with Congressman Richard Pombo, the City of Stockton, and the California Water Commission, in support of $550,000 in Fiscal Year 1997 for the continuation of the Stockton Metropolitan Area Study for flood control by the U.S. Army Corps of Engineers Successful management and stewardship of the water resource can provide solutions to our water supply problems. The Corps operates Farmington Dam that has the potential of conservation storage of up to 160,000 acre feet. However, a study is needed to determine the seepage and whether it is feasible to raise the level of this dam This conjunctive use should be examined as part of the flood control strategy of the Corps

We hope that this Committee will act favorably to help the people of the Stockton area help themselves in solving our long-term water problems. Your Committee's past leadership has been essential in providing us with the tools to solve our problems These studies are necessary to bring about the local-Federal partnership necessary for us to meet these challenges.

PREPARED STATEMENT OF JAY ANDERSON, REPRESENTING THE MERCED COUNTY BOARD OF SUPERVISORS

Mr. Chairman and Members of the Committee:

My name is Jay Anderson of Merced, California. I am representing the Merced County Board of Supervisors, which, together with the State of California, is the sponsor of the Merced County Streams Project. The County is joined by the Merced Irrigation District, the City of Merced, the El Nido Irrigation District, and the Le Grand Athlone Water District.

Federal authorization for the project construction was granted as part of the Supplemental Appropriations Act of 1985. Authorized facilities include constructing dry dams on Canal (Castle Dam) and Black Rascal Creeks (Haystack Mountain Dam), enlargement of the existing Bear Creek Dam, and modification of levees and channels along more than 25 miles of Fahrens, Black Rascal, Cottonwood, and Bear Creeks. The completed project will provide flood protection worth more than $10,000,000 per year to 263,000 acres of urban and agricultural lands. Total project cost is currently estimated to be $124,500,000 of which $38,600,000, or roughly 31%, will be paid during construction by the local beneficiaries.

When completed, more than 240,000 residents occupying 55,000 housing units within the greater metropolitan Merced area will live with assurance of 125-year flood protection, while the lower rural area will receive 25-year protection.

The first component of the project, Castle Dam, was completed in 1992. This component was constructed under budget, ahead of schedule, and without a lost-time accident. Without Castle Dam during the intense storms of January, February and March 1995, the city of Merced would have been partially inundated. We look forward to the transfer of operational responsibility within the next year.

As a result of a request by the County of Merced, Corps of Engineers has reevaluated project components and will extend the boundaries of the levee and channel portion of the project to better match growth that has taken place in the city of Merced. This willingness to remain flexible throughout the lengthy planning and design process is also a credit to the Corps and its staff.

The Merced County Streams Project is a modification and expansion of an earlier flood control project constructed between 1948 and 1957. It has undergone considerable review and modification since first authorized as part of the Flood Control Act of 1970. Approximately $15,000,000 has been spent to date on the Merced County Streams Project. This has been matched with local contributions of approximately $3,000,000. As partners in financing the construction of this project, we have worked closely with the Corps to establish an economic balance between costs and benefits. As a result of this combined effort, nonessential project components were first scaled back and eventually eliminated. This scaling to fit the economic reality resulted in substantial federal and local savings.

In January of 1993, and also in January and March 1995, Merced County received rains of heavy intensity. Considerable flooding occurred within the project area. Bear Creek overflowed its banks one mile southeast of Merced, and broke its banks approximately four miles southwest of Merced. Mariposa and Miles Creeks overflowed their banks in various areas southeast of Merced. Quick action by maintenance crews from the Merced Irrigation District, assisted by airmen from Castle Air Force Base, working around the clock for two days and nights, averted a major disaster in 1993. Castle Air Force Base has since been closed so help from this source will no longer be available.

The project has the support of state and local authorities and funding of the non-federal portion has been addressed.

We request the Committee's support for the inclusion of $900,000 in the 1996/97 budget as recommended by the California Water Commission and the Corps of Engineers, for the orderly progress of the Merced County Streams Project, which is so vital to the community, state, and the nation.

PREPARED STATEMENT OF BRUCE GEORGE, MANAGER, KAWEAH DELTA WATER CONSERVATION DISTRICT

Mr. Chairman and Members of the Subcommittee:

My name is Bruce George, and I am the Manager of the Kaweah Delta Water Conservation District in the eastern San Joaquin Valley of California. Thank you for the opportunity to comment on the Fiscal Year 1997 budget for the U.S. Army Corps of Engineers.

The Conservation District respectfully requests that Congress appropriate $1.3 million to the Corps in FY 97 for continuation of preconstruction engineering and design (PED) of a project to increase the water storage and flood control capacities of Terminus Dam at Lake Kaweah, California.

The Conservation District also requests that the Committee to provide $1 million in FY 1997 dam safety funding for a seismic testing and analysis program to verify the stability of Terminus Dam.

In addition, we urge the Committee to support the transfer of $100,000 in Bureau of Reclamation funds to the Kaweah Delta Corridor Enhancement Project.

Terminus Dam Enlargement Project

The Corps has not yet provided an estimate of its FY 1997 needs for the Terminus enlargement PED and seismic programs. However, the full cost for the currently scheduled 30-month PED program is $3.1 million, of which $200,000 was appropriated in FY 96. Maintaining the 30-month schedule requires an FY 97 appropriation of approximately $1.3 million. The California Water Commission supports an FY 97 appropriation of $1.3 million for Terminus PED.

The total cost of the dam safety analysis is approximately $2 million, with an estimated $1 million required in FY 97. The California Water Commission supports a FY 97 appropriation of $1 million for the dam safety study.

Funding of the PED program and dam safety study in FY 1997 also are supported by Representatives George Radanovich and Cal Dooley and Bill Thomas.

The Conservation District was formed in 1927 to conserve and protect the surface and groundwater of the Kaweah delta. The District serves 337,000 acres, which include the cities of Visalia and Tulare and several other incorporated and unincorporated areas in Kings and Tulare counties. Those two counties consistently rank among the most productive agriculture counties in the nation.

Terminus Dam and Lake Kaweah, located on the Kaweah River three and one-half miles east of the District, was completed in 1962 by the U.S. Army Corps of Engineers. The purpose of the project is to provide storage space for flood protection and irrigation on the Kaweah River. The Conservation District manages the irrigation and flood control releases for Lake Kaweah, as well as assisting in the conjunctive use of the surface and groundwater of the Kaweah delta.

Rapid growth and inadequate flood protection in the region have created a need for greater reservoir storage space for flood control and irrigation storage. With a maximum capacity of 143,000 acre-feet, Lake Kaweah currently provides a less than 50-year level of flood protection for communities downstream.

In 1988, the Corps began a feasibility study for a project to enlarge Lake Kaweah. The project would add approximately 43,000 acre-feet of flood control and conservation storage space to the lake by widening the Terminus Dam spillway and raising it by 21 feet.

The Corps has nearly completed a draft feasibility report for the project, and the locally preferred alternative recommended in the draft report would provide a balanced project with environmental and other benefits. It is strongly supported by agricultural and recreational interests, and by local governments in the region, including Kings and Tulare counties, the City of Visalia and the Kaweah Delta Water Conservation District.

These local authorities have continued to pay half the cost of the $3 million feasibility study despite the fact that the original cost-sharing agreement signed by the Corps in 1988 was for a local contribution of only $800,000. The Corps has increased the total cost of the feasibility study three times since 1988, nearly doubling the original estimate of $1.6 million.

The Conservation District and other local authorities reluctantly agreed to share the cost increases because the Corps said that was the only way to continue the project.

California's growing population will place ever increasing demands on its water supply. Improving existing facilities such as Terminus Dam is one of the most economical and environmentally sensitive ways to meet those new demands. It is important for Congress to encourage such projects.

The Kaweah Delta Water Conservation District urges Congress to provide a level of FY 1997 funding to ensure that the Terminus enlargement project can be completed without further delay and additional unnecessary expenses.

Kaweah Delta Corridor Enhancement Project

The Kaweah Delta Corridor Enhancement project is intended to integrate long term groundwater recharge and flood control solutions with native habitat conservation and restoration along the Kaweah River. Of particular importance is the restoration and protection of Valley Oak riparian forests, which are unique in the San Joaquin Valley and are critically important wildlife habitat.

The project, now in its second phase, is being funded by the State of California and the Bureau of Reclamation. In FY 1996, Congress authorized the Bureau to transfer $100,000 to the enhancement project through the National Fish and Wildlife Foundation. An additional $100,000 is required to continue the project in FY 1997.

The Conservation District respectfully requests that the Committee authorize the Bureau of Reclamation to transfer $100,000 from its FY 97 construction account to the Kaweah Delta Corridor Enhancement Project to fund costs attributable specifically to environmental enhancement.

Thank you

PREPARED STATEMENT OF MARY K. SHELL, SUPERVISOR, FIFTH DISTRICT IN KERN COUNTY, CA

Mr. Chairman and Members of this Subcommittee:

I am Mary K. Shell, Supervisor of the Fifth District in Kern County, California. I am here today on behalf of the Kern County Board of Supervisors, Kern County Water Agency, and the Lamont Storm Water District to support an allocation of $150,000 for FY 97 for the Corps of Engineers to continue the Caliente Creek Flood Control Study.

The Caliente Stream Group has had eight major flood events since 1932. They have inundated homes, businesses, farmlands and transportation systems and caused in excess of $80 million in damage.

After the last serious flood in 1983, Kern County entered into a feasibility cost sharing study in 1985. Our county was one of the first in the nation to sign a federal cost-sharing agreement for feasibility studies. When the initial study indicated the project planned would not meet a cost/benefit analysis, a second feasibility study was initiated in 1992.

Some $3 million of a $4.1 million study have been expended so far. Our local taxpayers have contributed about $800,000 of this amount ---- nearly a third. I have attached a graph illustrating the expenditures by all agencies involved.

The Corps of Engineers has completed Phase 1 of the feasibility study and is three years into phase 2.

Because Phase I showed a weak benefit to cost ratio (1.2:1) and because of expected more restrictive Corps'financial standards, our local agencies have been conducting public meetings to receive input on the viability of continuing the Corps project. I am asking for an advisory election to determine local support for funding the local share of the project. We are planning to conduct this election in April or May.

If this advisory election indicates continued strong support, we would like to continue with Phase II of the study, which would be completed in 1998.

Then, if found to be feasible, construction of the project would remove the 14,000 people of Lamont from the flood plain and provide them a sense of security. A majority of the Lamont residents are farm workers.

I appreciate your time and attention.

PREPARED STATEMENT OF KENNETH H. JOHANSON, DISTRICT ENGINEER, FLOOD CONTROL AND WATER CONSERVATION DISTRICT, NAPA, CA

NAPA RIVER FLOOD CONTROL PROJECT

Background and Present Status

Background:

The Napa River is the main waterway into which all tributaries of the Napa Valley flow. The River reaches its highest flow and the main point of concentration of stormwater in the heart of the downtown city of Napa.

The original town of Napa was established at the head of the navigable Napa River channel in 1848 as its only port for transportation and commerce until the railroad extended from Benicia to Napa in 1902.

The Napa River has damaged the City of Napa 12 times in the past 50 years and the River's most damaging flood of record occurred in February 1986 causing losses in excess of $100 million, 3 lives lost, and evacuation of 3,500 residents.

Flood damage in downtown Napa has recurred in January 1993 and January 1995 resulting in disaster declarations and substantial Federal assistance and economic losses, re-affirming the urgent need to implement this cost-effective project. In March 1995 another disaster level flood occurred and FEMA is currently surveying damage.

Damages throughout Napa County totaled about $85 million from the January and March 1995 floods, $10 million and $75 million, respectively. The floods resulted in 227 businesses and 843 residences damaged county-wide.

Locally developed flood measures currently in place provide minimal protection and include levees, floodwalls, pump stations, upstream reservoirs, restrictive flood plain management ordinances, and designated flood evacuation zones. Vast areas of flood plain are restricted to agricultural and open space uses, precluding development which would be damaged by flooding. These local measures still leave most of the city of Napa vulnerable to frequent damaging floods.

After exhaustive review of alternatives, the Corps in the spring of 1995 released its Supplemental General Design Memorandum (GDM) and Supplemental Environmental Impact Statement (EIS) for comments. The GDM plan was met with substantial comments from the local community and resource agencies. As a result, the local sponsor in connection with the community and the Corps of Engineers is conducting a 6-month community consensus process to identify an acceptable redesign of the project. The Corps has currently suspended work on the plan until community effort is complete. The pending Corps plan concentrates its benefits on a 5 1/2 mile reach of the Napa River passing through the older, most highly developed downtown business and residential districts. This plan would protect approximately 3,500 land parcels from the 100 year flood event on the Napa River and its main connecting tributary, the Napa Creek. The Corps' calculation of Benefit to Cost Ratio for this plan is 1.37 to 1 and is estimated to produce a net savings of over $4 million per year over the projected 100 year life of the project improvements. This plan will be refined by the local redesign effort and incorporated into Corps' documents.

The dynamic community consensus process involves a broad cross-section of local interests from architects to hydrologists and vineyard owners who will be looking at a series of identified design alternatives for the project. The Corps is actively involved in the partnered effort dedicating its resources and experience to the local effort.

We understand that the Corps' support of this effort is approximately $350,000 of its current year planning and design budget. The local commitment is $300,000 in staff and consultant resources. The local commitment is a partnering of the County Flood Control District, the City of Napa, the Napa Valley Chamber of Commerce, the Napa Valley Economic Development Corporation, and the Friends of the Napa River, a private non-profit organization. The goal is to develop a local consensus on an acceptable and approvable project the community can afford by June of 1996. The Corps would then incorporate this redesign into its GDM and EIS. The local sponsor's goal is to initiate a new construction start for the project in FY 1998.

One of the identified alternatives now under consideration in the redesign effort is a watershed management approach to the project. While this approach could offer benefits especially to the upper watershed reaches, a separate compatible study effort may be considered to look at the whole watershed, as the project proceeds. The County looks forward to working with the Committee as this develops.

Project Synopsis

In 1986, the community requested the Corps to reactivate an earlier study. This re-definition of the problem downsized the earlier concept design from a 12 mile reach to 5 1/2 miles; substituted channel improvements on Napa Creek for an earlier upstream reservoir, and incorporated environmental mitigations and a cost-shared recreation-trail element into its design. To accelerate the process, the City of Napa retained planning consultants, and jointly with the U.S. Park Service and a broad-based technical committee, including the Corps, developed a park and recreation master plan, downtown waterfront restoration plan and trails plan to identify the local elements.

As of this writing, work on the GDM and SEIS has been suspended by the Corps pending the completion of the local redesign effort. Once the consensus plan is identified, the Corps will incorporate these elements into the SGDM and SEIS. The revised draft GDM and EIR/EIS will be published for public review and comment in January of 1997.

FY 1996 Funding

The 1996 budget included S787,000 to prepare the draft General Design and environmental review process, complete environmental and water quality studies, and finalize sediment/control features.

Necessary FY 1997 Funding

Funding for the Napa River project during 1997 in the amount of S1.000,000 is needed to complete the design and environmental review and to finalize the Project Cooperation Agreement (PCA) to begin construction of the downstream reach in 1998.

Recommendation:

Based on continuing high flood risk and severe damage from the Napa River, we request that the committee support $1,000,000 to complete design and environmental review of the Napa River Project.

NAPA RIVER FLOOD CONTROL, CALIFORNIA
PROJECT BACKGROUND

The Sacramento District, US Army Corps of Engineers (Corps) is working in partnership with the Napa County Flood Control and Water Conservation District (NCFC&WCD) and the City of Napa to control flooding along the Napa River and Napa Creek. NCFC&WCD is the local sponsor for flood control and the City of Napa is the local sponsor for recreation. The Corps is working on the preliminary design phase and will incorporate the consensus-based redesign in its design documents. Over the years, alternative flood control plans have been compared. In May 1993, representatives from the City, County, Sacramento District Corps and higher Corps levels met to identify which of the alternative plans is the "best" plan. The Corps call this "best" plan, the National Economic Development (NED) plan. The NED plan must be economically justified, environmentally sensitive and locally accepted. In July 1994, an administrative draft Supplemental General Design Memorandum (SGDM)/Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR) was completed and sent to higher Corps levels and the local sponsor for review. The draft SGDM/SEIS for public review and comment were developed based on the review of the administrative draft, received numerous comments and as a result, will be refined based on the local consensus product.

The Corps is working with the U.S. Fish & Wildlife Service and the California Department of Fish &Game to ensure that any loss of riparian vegetation and shaded riverine aquatic habitat will be compensated. A combined draft SEIS/EIS will be refined by the Corps as a result of the redesign with assistance from the city and county. The SEIS/EIR discusses impacts to fish and wildlife resources, riparian, wetlands and upland vegetation, water and air quality, recreation, endangered species, land use, socioeconomic, aesthetic impacts and cumulative impacts. The draft SEIS/EIR will be released again for public review and comment once the consensus process is complete.

After the final SGDM and SEIS/EIR are approved, the construction drawings will be prepared. The Project Cooperation Agreement will be negotiated and signed by the local sponsors and the Corps. Once construction funds are appropriated and real estate is acquired, construction can begin. The sponsor is working to ensure that construction of the flood control features will start in Fiscal Year 1998.

Design Refinements Under Review

As previously discussed, the local sponsor in coordination with the community and the Corps has initiated an aggressive redesign effort. The community redesign effort will review the following design alternatives to reach consensus on an acceptable plan which can be approved by the Corps and supported by the sponsor and community.

- ### *Upstream Dams and Reservoirs*

  The Coalition is now determining hydrologic benefits that can accrue to downstream properties, including the City of Napa from dams, reservoirs or a combination of storage alternatives upstream of the City of Napa.

- ### *Watershed Management*

  The focus is on determining hydrologic benefits that can accrue to downstream properties, including the City of Napa, from implementation of a comprehensive watershed management program involving creation of wetlands, agricultural property setback levees, planting of cover crops and other elements.

- ### *Oxbow/Downtown Alternatives*

  The Committee is reviewing oxbow design alternatives which can convey 100 year flood waters through this reach of the river, including current Corps design, widened oxbow (no by-pass) and a dry by-pass. This effort will identify key downtown issues, such as bridges, downtown land use plans, circulation and other things. The Committee will also review Napa Creek issues.

South of Third Street River Restoration

The review will consider the widened, terraced, three stage channel design alternative for its ability to convey 100 year flood waters from Third Street to Kennedy Park. It will define and identify options for river restoration and identify toxic and design issues for Riverside Drive area.

Concurrent with review of the design alternatives and working with the resource agencies, the Committee will develop minimum and preferred standards for water quality, fish and riparian habitat, including quantitative measures regarding oxygen, salinity, temperature and other areas pertinent to the Napa River project. Each alternative design recommended will be reviewed to determine the economic and regulatory feasibility within the current Corps of Engineers authority, cost/benefit analysis and the resulting impact on the local share of cost and financing plan. In addition, a compatible recreation plan will be incorporated into the final design. The plan will expand upon existing community features and create new recreation opportunities taking advantage of the watercourse setting.

THE NAPA RIVER TIME SCHEDULE AND CURRENT STATUS

Initiation of Preconstruction Engineering and Design (PED)	Oct. '88	Completed
General Design Conference	Jan. '89	Completed
Public Hearing	May '89	Completed
Public Scoping Workshop	Jun. '89	Completed
Inter-Agency Constraints and Concerns Workshop	Aug. '89	Completed
Napa City Council sponsors Recreation Component	Sep. '89	Completed
"Information Paper No. 1" Concept Design released for local task force and Division Review	May '90	Completed
Public/Technical Review of Alternatives and Recreation Element	Apr. - Aug. '91	Completed
In-Progress Review, Alternatives, HTW Schedule and Cost Revisions	Aug. '92	Completed
Identify National Economic Development (NED) Plan	May '93	Completed

Technical Review, Administrative Review Draft Design Document (GDM) - EIS-EIR	Aug. -Dec. '94	Completed
Publish Draft GDM/EIS-EIR	Mar. '95	Pending
Republish Draft GDM/EIS-EIR	Jan. '97	
Sign Project Cooperation Agreement (PCA)	Nov. '97	
Initiate Plans and Specs	July '97	
Begin Construction	May '98	

NAPA RIVER NAVIGATION DREDGING

Background

It has been 8 years since the last channel maintenance dredging was performed. In September, 1988 the channel was restored to a depth of 10" at a width of 75' from Third Street to the Kennedy Park launch ramp; and a depth of 15' at a 100' width from the Kaiser Drydocks/Basalt Barge wharf to Good Luck Point for a total distance of approximately 8 nautical miles.

The channel has historically served as a commercial shipping corridor for transport of large-scale steel and concrete fabricated products including: ship hulls, oil exploration and production platforms, and large diameter pipe. The Bay Area Rapid Transit System's trans-bay tube which carries the San Francisco-Oakland rail mass transit system under and across San Francisco Bay was manufactured in Napa, floated down the Napa River and installed in the Bay. Large quarried rock for harbor and breakwater construction move through the system, as well as raw chrystalline salt for chemical manufacturing. Local riverside manufacturing facilities may also present unique opportunities for serving the seismic bridge and highway reconstruction projects being planned for the western U.S. by the Federal Highway Administration.

The River is one of few navigable rivers on the Western U.S. Coast and is a strategic asset for the expanding Pacific Rim Marketplace. The Napa River channel is complemented by state and locally constructed and maintained lift bridges (1 highway and 1 railway) and a high elevation-high clearance fixed highway bridge to accommodate ship traffic.

In addition, there are private boat harbors, 1 marina, 4 ship dry docks and numerous boat launch and mooring facilities along the maintained reach of the river channel. All of the above mentioned facilities and uses are important to the local economy.

Present Status

The Napa River Navigation channel was surveyed in August 1993 and was found to have shoaling and blockage of the channel between Good Luck Point and the Third Street Bridge. Federal funds were budgeted in FY '94 and the permitting and bidding process was underway targeting a dredging project for September 1994, when the process was halted by order of the U.S. Fish and Wildlife Service (USF&WS) for evaluation of the main disposal site at John F. Kennedy Park for possible presence of the Salt Marsh Harvest mouse, a Federally listed endangered species.

The San Francisco District Office of C.O.E. consulted with USF&WS and conducted a trapping program in July - August 1995 which found that the subject mouse was not present. These findings were provided to USF&WS which on October 18, 1995 responded in writing to the negative findings of the trapping program, stating in essence that the disposal site is not now subject to their restriction. However, the trapping program and USF&WS consultation delayed the project beyond the 1995 reconstruction cycle.

Project Synopsis

Condition surveys in 1993 and 1994 indicate worsening of shoaling and in 1995 and thus far, this year the River has experienced 3 storm flows estimated to be approximately 50-year flood events creating further deterioration of the navigation channel.

Necessary FY 1997 Funding

Plans and specifications and all environmental clearances and approvals are in place - the project is ready to go if there is funding. $2.1 million is estimated to be the cost of dredging to remove approximately 250,000 cubic yards of sediment. We understand that this project is not included in the Administration's FY '97 budget proposal. However, this funding is needed to provide access for critical navigation for commerce and industry in the region. In addition, this dredging work is needed as a base condition of the Napa River flood control project. The City of Napa is supporting this work to promote tourism, a key commercial activity in the area.

Recommendation:

Request an add of $2.1 million to the Corps of Engineers' budget to fund the maintenance dredging of the Napa River Flood Control channel from Third Street to Good Luck Point for FY 1997.

PREPARED STATEMENT OF NORMAN RICHARDSON, MAYOR, CORTE MADERA, CA

Good Afternoon! My name is Norman Richardson; I am the Mayor of Corte Madera, California.

I have come before you this afternoon to respectfully request that this Subcommittee support a budget allocation in FY 97 of $800,000 for the **Pre-construction Engineering and Design** of the San Clemente Creek Tidal Storm Damage Reduction Study. The project is listed under **Marin County Shoreline - San Clemente Creek**

As most of you know, the Town of Corte Madera is located on San Francisco Bay just north of the Golden Gate Bridge. This area is an ideal location and desirable place in which to live.

Unfortunately, our location on San Francisco Bay has placed us at the mercy of serious tidal flooding problems. This flooding occurs in the area along San Clemente Creek and is caused by a combination of ground subsidence, high tides and storm water runoff. Tidal flooding can even occur in dry weather. And it is predicted to increase with the passage of time because the area is settling as the bay mud which lies underground continues to consolidate.

The Town of Corte Madera is committed to maintaining the community's safety and quality of live. To that end, the Town and the U. S. Army Corps of Engineers negotiated a Cost Sharing Agreement to conduct a Feasibility Study which will define the flooding problem and develop a plan for Congressional action.

The Town Council approved the Cost Sharing Agreement and has budgeted funds to pay its full share of all local costs.

Last year, with the assistance of this Subcommittee, the Town secured funding to complete the Feasibility Phase of the study and to provide for a seamless transition into the Pre-construction Engineering and Design Phase.

This year, the California Water Commission is recommending that $800,000 be included in the President's FY 97 Budget to complete the Pre-construction Engineering and Design Phase. I respectfully request that you maintain the FY 97 budget allocation of $800,000 for the Marin County Shoreline - San Clemente Creek Study.

Thank you very much for your kind attention and continuing support for this important project.

PREPARED STATEMENT OF JOE JUDGE, CHAIR/BOARD OF DIRECTORS, SANTA CLARA VALLEY WATER DISTRICT, SAN JOSE, CA

GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the major waterways that flow through the highly developed area of San Jose, California. Historically, the river has flooded the downtown areas of San Jose and Alviso beyond local capability to prevent. For example, estimated damages from a 1 percent flood that would inundate the urban center of San Jose, is $526 million. It is estimated that a 2 percent flood on this river would cause $234 million worth of damage under existing conditions. The probability of such a flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Guadalupe River had started to overflow its banks in April 1982 and January 1983 before the storms receded and avoided major damage. The Guadalupe River did overbank in February 1986 and most recently, on January 9, 1995, and March 10, 1995, causing damages to residences and business in the St. John and Pleasant Street area of the downtown.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The Stage 2 report was completed in 1980 for the combined Guadalupe River, Coyote Creek and Baylands. The report at that time established the economic feasibility and federal interest in the Guadalupe River.

The Guadalupe River project received authorization for construction under the Water Resources Development Act of 1986. Since that time, the final General Design Memorandum (GDM) was completed in 1992, the local cooperative agreement was executed in March 1992, construction of the first phase of the project was completed in August 1994, and a construction contract for the second phase of the project was awarded in July 1994.

In an effort to accelerate the completion of this project, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. The local community has initiated local projects within the Corps' project reach and reaches downstream of the Corps limits. In excess of $30 million in local funds has been spent on the planning, design and construction of such improvements to date.

FY 1996 FUNDING

The 1996 Budget includes $8.1 million to continue construction of the Guadalupe River Project. Construction of Contract 1 was completed in August 1994. Construction of Contract 2 is proceeding and scheduled to be completed in August 1996. Contract 3 of the project is scheduled to be advertised in January 1997 and be completed in March 1998.

NECESSARY FY 1997 FUNDING

Funding for the Guadalupe River project during 1997 in the amount of $12.5 million to continue construction is essential to providing critically needed flood protection to the metropolitan area of San Jose and the north San Jose community of Alviso.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Guadalupe River, it is requested that the Committee support $12.5 million that is included in the Administration's budget to continue construction of the Guadalupe River project.

UPPER GUADALUPE RIVER PROJECT

BACKGROUND

The Guadalupe River is one of the two major waterways that flow through the highly urbanized area of Santa Clara County, California. Historically, the river has flooded the central district of San Jose and areas south beyond local capability to prevent. For example, the estimated damages from a 1 percent flood, which would inundate the urban center of San Jose, is $527 million. Damages in the Upper Guadalupe River's densely residential floodplain south of Highway 280 would exceed $114 million. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Upper Guadalupe River near Alma Street had started to overflow its banks in February 1980 before the storm receded and avoided major damage. The Upper Guadalupe River did overbank in March 1982, January 1983, February 1986, and again in January 1995, and March 10, 1995, causing damage to several residences and businesses in the Alma Street and Willow Street area. The flooding of January 9, 1995, and March 10, 1995, closed Highway 87.

STUDY SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies for the Guadalupe River were completed in 1978. The 1980 Stage 2 report established the economic feasibility and federal interest in the Guadalupe River only between Highway 880 and Highway 280. In light of flooding in 1982 and 1983, the local sponsors requested that the Corps reopen its study of the Upper Guadalupe River (upstream of Highway 280). The Corps completed a reconnaissance study in November 1989 which established that there was an economically justifiable alternative solution to the flood problem. The report recommended proceeding to the feasibility study phase. A Feasibility Cost-Sharing Agreement (FCSA) was signed by the local sponsor and the Corps on October 16, 1990 and amended in December 1992. The milestone F4 conference resulted in a reformulation of the project alternatives. A new FCSA was signed in July 1995. The new estimate is for a $5.0 million study scheduled for completion by 1997. Based on the risk-based analysis completed in January the NED plan would be the 50-year level of flood protection. Project cost would be $46 million. The local sponsor strongly feels that there are adequate overriding and compelling reasons favoring selection of a higher level of protection (100-year) as the NED plan.

FY 1996 FUNDING

A feasibility investigation on the Upper Guadalupe River continued in 1996 with funding in the amount of $285,000.

NECESSARY FY 97 FUNDING

Funding for the Upper Guadalupe River project during 1997 in the amount of $500,000 to complete the feasibility study effort is essential to timely implementation of critically needed flood protection.

RECOMMENDATION

Based upon the present high flood risk and potential damage from the Upper Guadalupe River, it is requested that the Committee support $500,000 for 1997 to complete the feasibility study on the Upper Guadalupe River. Costs of the study are shared equally between the sponsor and the Corps.

COYOTE/BERRYESSA CREEK PROJECTS

BACKGROUND

The Coyote and Berryessa Creeks investigation was authorized by Congress in 1941 under the Guadalupe River and Adjacent Streams authority. Coyote Creek is one of the two major waterways that flow through the highly urbanized areas of San Jose, Milpitas and Santa Clara County, California. Berryessa Creek flows through a small portion of San Jose and the growing community of Milpitas. Historically, Coyote Creek has flooded the north San Jose community of Alviso beyond local capability to prevent. Damages on Coyote Creek would be $250 million during the 1 percent event to the north San Jose and Milpitas area. Berryessa Creek would cause $52 million in damages to the homes and industries of Milpitas and San Jose. The probability of a large flood occurring before implementation of flood prevention measures is quite high. A 2 percent flood has an 18 percent chance of occurring during a 10-year period; a 1 percent flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. In January 1983, floodwaters escaped from Berryessa Creek and caused damage to several homes and businesses. Coyote Creek has caused the greater damages amounting to several million dollars, overbanking in April 1982 and again in March 1983. Hundreds of people were forced to evacuate their homes where floodwaters stood for many days. Flood damages were avoided in January and again in March 1995 due to the protection offered by the substantially completed Coyote project.

PROJECT SYNOPSIS

In 1971, the community requested the Corps of Engineers (Corps) to reactivate its earlier Guadalupe River and Adjacent Streams Study which included Coyote Creek. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative studies were completed in 1978. The third phase, study of freshwater flooding in the Baylands, (which included the lower reaches on Coyote Creek) was completed in 1979. The Stage 2 report could not establish the economic feasibility and federal interest in Coyote Creek. In light of flooding in 1982 and 1983, the Corps refocused its study on Coyote Creek to address the inadequate level of protection provided by unstable levees. Berryessa Creek originally was a Section 205 study but was combined with Coyote Creek when the project cost exceeded the limits of that program.

In an effort to accelerate the completion of this overall program, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. Special planning studies have been completed by the District for inclusion into the Corps' studies. The Coyote/Berryessa Creek project received authorization for preconstruction, engineering and design under the Water Resources Development Act of 1986. The project was authorized for construction under the Water Resources Development Act of 1990. The Project Cooperation Agreement for Coyote Creek was executed in August 1994.

The severe flood problem and the ominous threat of future damages has forced the local community to initiate a local project on Coyote Creek in anticipation of future federal participation. Over $30 million has been spent on the planning, design and construction of improvements on Coyote Creek to date, which are planned for augmentation of and incorporation into the federal project. The Chief of Engineer's February 1989 report contained $8.63 million Section 104 credit for flood control measures undertaken by the Water District from San Francisco Bay to Milpitas Sewage Treatment Plant. Congress authorized, in the Water Resources Development Act of 1988 (PL 100-676), $3 million in reimbursement to the Water District for construction of flood control measures upstream of the Milpitas Sewage Treatment Plant. The District has completed this work. A Section 215 agreement was executed with the Corps in December 1993 which provides additional $3 million for the sponsor to design and construct approximately 7,000 feet long of Coyote Creek upstream of Highway 237 in the cities of San Jose and Milpitas. The flood control improvements were completed in February 1996. The remaining project work consists of establishing over 20 acres of riparian mitigation.

FY 1996 FUNDING

The 1996 Budget included $12.0 million to continue Preconstruction Engineering and Design (PE&D) on Berryessa Creek and continue construction on Coyote Creek. The Corps awarded the Coyote Creek construction contract in September 1994 which was completed in February 1996.

NECESSARY FY 97 FUNDING

Construction funding for the Coyote/Berryessa Creek projects during 1997 in the amount of $2.4 million as contained in the Administration's budget will be required to complete construction of the Coyote Creek project and complete GDM preparation and design for Berryessa Creek.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Coyote and Berryessa Creeks, it is requested that the Committee support continued construction funding in the amount of $2.4 million as included in the Administration's budget to continue federal construction.

UPPER PENITENCIA CREEK PROJECT

BACKGROUND

The Upper Penitencia Creek watershed is located in the northeast part of Santa Clara County, California, near the southern end of San Francisco Bay. The creek has flooded many times, most notably in 1911. More recently the creek overbanked in 1978, 1980, 1982, 1983, 1986, and 1995. The January 9, 1995, event caused damage to a commercial nursery and deposited mud in a condominium complex and a business park.

The proposed project on Upper Penitencia Creek, from Coyote Creek confluence to Dorel Drive, will protect portions of cities of San Jose and Milpitas. The watershed is completely urbanized, undeveloped land is limited to a few scattered parcels still used for agriculture and the corridor along Upper Penitencia Creek. Based on the 1995 Reconnaissance Report, 4,300 buildings are located in the

floodprone area, 1,900 of which will have water entering the first floor. The estimated damages from a 1 percent or 100-year flood is $121 million.

STUDY SYNOPSIS

The Natural Resources Conservation Service (NRCS) under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, completed a study of the economic feasibility of constructing flood damage reduction facilities on Upper Penitencia Creek. However, NRCS watershed plan has been stalled since 1990 by the U.S. Department of Agriculture because the benefits to agriculture are less than 20 percent of the total benefits of the project.

The Santa Clara Valley Water District requested that the Corps proceed with a reconnaissance study in April 1994 as one possible option to solving the dilemma of the stalled NRCS plan. Funds were appropriated by Congress for FY 1995 and the Corps started the reconnaissance study in October 1994. The Reconnaissance Report was completed in July 1995, with the recommendation to proceed with the Feasibility Study Phase. The Feasibility Study is scheduled to be completed in August 1998.

FY 1996 FUNDING

The Feasibility Study is scheduled to begin on Upper Penitencia Creek in FY 1996 with funding in the amount of $120,000. The Feasibility Study Cost-Sharing Agreement is expected to be signed by the sponsor in April 1996. The study is scheduled to be completed in August 1998.

NECESSARY FY 1997 FUNDING

Funding for the Upper Penitencia Creek project during FY 1997 in the amount of $650,000 to continue the Feasibility Study is essential to providing needed flood protection to the citizens in Cities of San Jose and Milpitas.

RECOMMENDATION

Based upon the present high flood risk and potential damage from Upper Penitencia Creek, it is requested that the Committee include $650,000 to initiate a feasibility study for the Upper Penitencia Creek project.

SAN JOSE AREA WATER RECLAMATION AND REUSE PROGRAM

BACKGROUND

The San Jose Area Water Reclamation and Reuse Program, also known as South Bay Water Recycling, will allow the City of San Jose and its tributary agencies of the San Jose/Santa Clara Water Pollution Control Plant to protect endangered species habitats, meet receiving water quality standards and supplement Santa Clara County water supplies.

The Santa Clara Valley Water District (District) is participating with the City of San Jose in the development of the reclamation and reuse program. Towards that end, the District is assisting the City of San Jose in providing financial support and technical assistance for program planning, liaison with water retailers, and in providing design, construction, inspection, and other services for the Program. Design, construction, construction administration, and inspection for the Program's Transmission Pipeline and Milpitas 1A Pipeline are being performed by the District under contract to the City of San Jose.

The Program is divided into two phases. Phase 1, now entering final design, involves construction of nearly 60 miles of transmission and distribution pipelines, pump stations and reservoirs, and has an estimated capital cost of $130 million. It is anticipated that Phase I will begin operation in November 1997, and will deliver an estimated 9,000 acre-feet/year of nonpotable recycled water. The City of San Jose is the program sponsor for Phase 1.

Phase 2, estimated to be implemented in 2001, will involve the assessment of other potential recycling strategies including additional nonpotable, groundwater recharge, and surface water augmentation, as well as environmental enhancements, such as constructed wetlands. The City of San

Jose and the District have investigated these options and a preliminary analysis has been written by the City.

In 1992, Public Law 102-575 authorized the Bureau of Reclamation to participate with the City of San Jose and the District in the planning, design, and construction of demonstration and permanent facilities to reclaim and reuse water in the San Jose metropolitan service area.

FY 1996 FUNDING

Construction funding of the San Jose Area Water Reclamation and Reuse Program continued in 1996 with funding in the amount of $1,715,000.

NECESSARY FY 97 FUNDING

Funding for the San Jose Area Water Reclamation and Reuse Program during 1997 to continue the construction effort is essential to timely implementation of this important water supply project.

RECOMMENDATION

Based on the important water supply and environmental benefits to the area, it is requested that the committee continue the construction for the San Jose Area Water Reclamation Program.

SAN FRANCISCO AREA WATER RECLAMATION STUDY

BACKGROUND

The purpose of the San Francisco Area Water Reclamation Study, also known as the Central California Regional Water Recycling Project, is to conduct a feasibility study to identify California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. The study is examining if freshwater can be freed-up, and what potential exchange could result to benefit to the environment, urban, or industrial needs. Only excess recycled wastewater that exceeds maximum local usage by Bay Area municipalities would be exported to outside regions for beneficial reuse. This excess water is currently disposed of into the San Francisco Bay, rivers and Delta—a discharge option that will be more difficult in the face of increasingly stringent discharge limitations and higher treatment standards facing the entire State.

The feasibility study is scheduled for completion in October 1995, so that a complete environmental review of the best alternatives can be completed by October 1997. These deadlines comply with the PL 102-575 requirement for a report back to Congress no later than 4 years after the Bureau of Reclamation's first appropriation in October 1993.

The Santa Clara Valley Water District is participating in the feasibility study in providing financial, technical, and project management support, along with other local water and wastewater agencies.

FY 1996 FUNDING

Feasibility Study funding of the San Francisco Area Water Reclamation Study in FY 1996 was $2,575,000.

NECESSARY FY 97 FUNDING

Funding for the San Francisco Area Water Reclamation Study during 1997 to continue the feasibility study effort is essential to timely completion of the Study.

RECOMMENDATION

Based on the important water supply and wastewater discharge benefits to the region, it is requested that the committee continue the feasibility study funding for the San Francisco Area Water Reclamation Study. Costs of the project are shared between the sponsor and the Bureau of Reclamation.

PREPARED STATEMENT OF CAROLYN C. CHANEY ON BEHALF OF THE CITY OF SANTA CRUZ, CA

Chairman [redacted], members of the subcommittee, thank you for your time. On behalf of the City of Santa Cruz, California, I respectfully request your assistance in forwarding the San Lorenzo River flood control project that has been in the works for many, many years. While the California Water Commission has not had a vote on this phase of the San Lorenzo River, we are confident if they had been given the opportunity, they would be supporting $7 million for the first year of a two-year construction project. In addition, we request an additional $1 million for environmental restoration of the project under Section 1135 of the Water Resources Development Act.

The U. S. Army Corps of Engineers has requested the inclusion of this project in hearings regarding the Water Resources Development Act for the last several years. Unfortunately, to date, there has not been a WRDA bill enacted. In anticipation of the authorization, however, we request your continued assistance with our project.

At the time of the Chief's Report two years ago, the Corps estimated the total construction cost at $15.7 million. With inflation and other changes, it is now estimated that it will cost approximately $18 million.

The City of Santa Cruz has been working with the Corps for several decades to upgrade the protection offered by our existing Corps flood control project which presently gives less than 30 years of flood protection. The Loma Prieta Earthquake that struck the heart of Santa Cruz in 1989 not only devastated the City's downtown but also delayed the proposed flood control improvements.

The City has in the meantime rebuilt its whole downtown. Therefore, it is essential, now more than ever, to eliminate a critical flood threat that exists in the City's downtown area. The project will also help create both construction jobs and long-term economic development as a result of potential private investments adjacent to the environmental enhancements we hope to attain.

Mr. Chairman, we thank your committee for supporting this project in the past and request that you continue to do so. After spending more than $4 million on studies, and anticipating to spend at least $10 million locally in bridge repair and replacement for this project, we hope that you will support the last phase of our project and allow us to go to construction of not only the basic flood control project, but also the enhancement portion of the project.

Thank you for your attention.

PREPARED STATEMENT OF CARL L. BLUM, DEPUTY DIRECTOR, DEPARTMENT OF PUBLIC WORKS, LOS ANGELES COUNTY, CA

Summary of recommendations by Los Angeles County Department of Public Works concerning budget allocations to the U.S. Army Corps of Engineers.

We strongly support the California Water Commission's recommendation to the Committee for:

- **$50 million to fund the continuing construction phase of the Los Angeles County Drainage Area (LACDA) project.**
- **Continue Federal funding for the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Hansen and Lopez Dams.**
- **Continue Federal funding for the Los Angeles County Drainage Water Conservation and Supply Feasibility Study for Santa Fe and Whittier Narrows Dams.**

Mr. Chairman and Members of the Committee:

We appreciate your Committee's continued support of critical flood control and water conservation projects in Los Angeles County, California.

Floods are a part of the history of the Los Angeles area. Widespread floods have periodically devastated vast areas of the region and were responsible for taking lives, damaging property and interrupting commerce and trade.

The U.S. Army Corps of Engineers and County of Los Angeles, acting on behalf of the Los Angeles County Flood Control District, have built one of the most extensive flood control systems in the world. Construction of the major elements of the system began in the 1920s and consisted of 20 major dams, 470 miles of open channels, and many other appurtenant facilities. Fifteen of these major dams are owned and/or operated by the County while the remaining five dams (Hansen, Lopez, Santa Fe, Sepulveda and Whittier-Narrows), are owned and operated by the Corps. Since the major segments were completed, it is estimated that the system has prevented $3.6 billion in potential flood damage.

Development which occurred after World War II exceeded the projections the Corps used in the 1930s and has increased runoff to the point where, even in a moderate storm, the runoff could exceed the design capacity of portions of the system. For example, the lower Los Angeles River in the City of Long Beach can only provide protection from a 40-year flood and came close to overtopping in 1980. A storm of greater magnitude would have a tremendous impact, both personal and economic, on Los Angeles County, the nation's second largest metropolitan area.

At the request of the County of Los Angeles, the U.S. Army Corps of Engineers analyzed the adequacy of the existing major flood control facilities serving the Los Angeles basin in the LACDA Review study. In 1990, a Project to upsize a portion of the LACDA system received Congressional approval subject to a favorable report by the Chief of Engineers (received in 1995), and signature of the Record of Decision by the Secretary of the Army, which was obtained in July 1995.

The final report by the Corps identified 100-year flood damages totaling $2.25 billion covering an 82-square-mile area which houses over 500,000 people. These damages would occur in the heavily-urbanized Los Angeles basin, where adequate protection from a 100-year flood was previously provided.

The LACDA project is a critical modification to existing facilities. Obtaining funds to do the modification is critical for two reasons: first, because of the threat of flooding to over one-half million people; and second, because FEMA is in the process of finalizing Flood Insurance Rate Maps (FIRMs) for the area that would be affected by overflows from the lower Los Angeles River and Rio Hondo Channel. The financial impact on the affected property owners could reach as high as $131 million annually for flood insurance premiums. Any delay in construction causes a great financial hardship on thousands of people, who thought the existing river provided adequate protection and will now need to buy flood insurance until such a project is completed. An economic impact study done by the University of Southern California also indicated that failure to construct the needed flood control measures will result in the loss of as many as 120,000 jobs. Economic losses in the region of over $30 billion over a 10-year period could also be realized due to stringent building restrictions.

This project, currently estimated to cost approximately $312 million, is scheduled to be done in 5-7 years. With $500,000 of initial construction dollars included in the Fiscal Year 1994-95 budget, construction is underway. The 1995-96 budget included $11.3 million to continue construction. Two construction contracts will be awarded later this Fiscal Year. In order to complete the project in a timely fashion, it is critical to move the level of construction activity to the $50 million a year level. As a result, we strongly support the California Water Commission's recommendation for $50 million to continue construction of the LACDA project.

Since their inception, the majority of the County's 15 dams have performed a dual role. In addition to flood control, our facilities have also been used to capture local storm runoff to assist in recharging our underground aquifers. With the exception of the Whittier-Narrows Dam, Corps facilities are not used to assist in groundwater recharge activities. Increased demands on our existing water supply system have shown the need of integrating local resources to better manage our local water supplies.

While the County captures much of the water flowing within our flood control system, 280,000 acre-feet on average is discharged to the Pacific Ocean each year from the Los Angeles River. Since 1985, the County has been working to improve its existing water conservation system. The utilization of certain Corps facilities could be an integral part of this system by storing significant amounts of this lost runoff.

In 1993, Congress authorized the Corps to initiate a reconnaissance study to determine the viability of increased use of Corps facilities for water conservation. The study looked at establishing water conservation pools at Hansen, Lopez, and Santa Fe Dams, and increasing the existing water conservation pool at Whittier Narrows dam. The utilization of these facilities would benefit many of the groundwater basins in the County. A secondary benefit would be realized by helping to dilute the groundwater pollution that currently threatens many water supply wells within these basins.

In May 1994, the Corps' reconnaissance study was completed. Preliminary benefit-cost ratios range from 2.2 to 19.0 for the four study sites, and the annual economic benefits range from $622,700 to $6,463,000. Overall, the four reservoirs could potentially conserve nearly 17,000 acre-feet annually of additional storm runoff, enough water to serve the annual needs of nearly 136,000 people. The study concluded that two feasibility studies were warranted: one for the Hansen Dam-Lopez Dam system, the other for the Santa Fe Dam-Whittier Narrows Dam system. The Corps began these feasibility studies in January 1995 with Los Angeles County as the local sponsor. Each feasibility study is to be conducted over a three-year period at a total cost of $4.66 million ($2.24 million for the Hansen-Lopez system and $2.42 million for the Whittier Narrows-Santa Fe system). The County will contribute 50 percent of the necessary funds. Currently, we are beginning the second of a three year schedule and anticipate completing both feasibility studies by early 1998. The Corps had funding authority for the 1996 Fiscal Year, of $0.40 million for the Hansen-Lopez study and $0.46 million for the Whittier Narrows-Santa Fe study.

We strongly support the California Water Commission's recommendation to provide necessary funding in the 1997 Fiscal Year for the Hansen-Lopez study and the Whittier Narrows Santa Fe study.

We appreciate your Committee's continued support in addressing these critical concerns in the Los Angeles County area of Southern California.

PREPARED STATEMENT OF THE LOS ANGELES COUNTY DRAINAGE AREA ALLIANCE

The LACDA Alliance, a coalition of seven cities in the Los Angeles and Rio Hondo River floodplains, urges Congress to support continued construction funding for the Los Angeles County Drainage Area (LACDA) flood control project. The cities in the LACDA Alliance: Bellflower, Carson, Downey, Lakewood, Paramount, Pico Rivera and South Gate, join the County of Los Angeles in seeking funding for an accelerated construction schedule. We support the local sponsor's request of $50 million for FY 1997.

The LACDA Alliance was organized to seek relief from burdensome floodplain management requirements and excessive flood insurance premiums triggered by the finding that the existing flood control system does not provide adequate protection from at least a 100-year flood event. Until the project is restored, the economic loss can be quantified by $131 million per year in additional flood insurance premiums and a total $36 billion regional economic loss and more than 170,000 jobs lost over ten years. The Alliance succeeded in securing legislation to reduce the economic impact from the Federal Flood Insurance Program, but relief from flood insurance requirements depends on continued progress in constructing the flood control project. The longer it takes to complete the project, the longer the cities in the floodplain and the region risk public safety and the economic loss of additional flood insurance premium costs and restrictive building requirements.

The LACDA project is essential to protect the residents and businesses of one of the most densely populated areas of our country. A 100-year flood event would flood as much as 82 square miles of Los Angeles County. More than 500,000 people would be directly affected in 11 cities, causing up to $2.3 billion in flood damages. An estimated 177,000 structures would be affected.

The Federal, State, and local governments have approved this project and construction has commenced on the first phase of the project at Compton Creek. The benefit cost ratio of this project is exceptionally high, 2.4. In fact, this benefit cost ratio will only rise as the sponsors of the project continue to identify ways of trimming the cost of the project. Every affected community has endorsed this project, as well as the entire affected Congressional delegation.

We ask that the Appropriations Committee continue its support for this essential flood control project by appropriating $50 million for the LACDA flood control project.

LETTER FROM DONALD J. MARTINSON, EXECUTIVE DIRECTOR, SANTA ANA RIVER FLOOD PROTECTION AGENCY, SANTA ANA, CA

March 6, 1996

Honorable Pete V. Domenici, Chairman
United States Senate
Committee on Appropriations
Subcommittee on Energy and Water Development

Subject: Santa Ana River Mainstem

The Santa Ana river Flood Protection Agency (SARFPA) represents eighteen cities and three special districts within the floodplain of the Santa Ana River in Orange County.

This is the anniversary month of the 1938 flood that inundated the northerly portion of Orange County. At that time, because of the relatively sparse population, several hundred thousand people were affected and loss of lives was less than one hundred. Now, that same type of flooding would affect millions of people, cause billions of dollars of damage and loss of live would be in the thousands.

The citizens of Orange County are very concerned by this potential flood threat and very much appreciate your continued support of the Santa Ana River Mainstem project.

PREPARED STATEMENT OF JAMES W. SILVA, SUPERVISOR, ORANGE COUNTY, CA

A. SUMMARY

Mr Chairman and Members, the Orange County Flood Control District (OCFCD), Orange County, California requests your support of an appropriation sufficient to maintain the planned construction schedule for the Santa Ana River Mainstem Project (SARP) during Fiscal Year 1997, and an appropriation which will permit completion of the reconnaissance study on San Juan Creek and Aliso Creek, Orange County, California.

As this Subcommittee is keenly aware, the U.S. Army Corps of Engineers considers the Santa Ana River to be the most critical flood threat in the West. The most severe flood likely to occur could impact 3 million people, kill 3,000 people and destroy property valued at more than $15 billion in three urban Southern California Counties.

The Flood Control Districts of Orange, Riverside and San Bernardino Counties have entered into a Local Cooperation Agreement with the United States Department of the Army to provide a minimum of 25% of the total SARP cost. The Local Sponsors' costs are now estimated to be 42% of the total project cost of $1 333 billion. OCFCD's share is about $509 million. To date, OCFCD has expended about $164 million toward its responsibilities to provide cash, land and relocations to make way for construction of the SARP.

The Local Sponsors have obtained possession of about 1,700 acres of land for mitigation and 2,270 acres for construction of the new Seven Oaks Dam. Electric transmission lines impacted by the new dam have been relocated, and the relocation of a hydroelectric plant has been arranged.

Land has been acquired and utilities have been relocated to support the U.S. Army Corps of Engineers accelerated construction schedule to improve the lower Santa Ana River Channel. The Talbert Channel ocean outlet has been relocated and the Santa Ana River ocean outlet widened. Approximately 16.6 miles of channel have been improved to increase floodwater carrying capacity. Four bridges have been lengthened to span the widened river. Ninety-two acres of degraded wetlands at the mouth of the Santa Ana River have been acquired and are being restored to mitigate project impacts. The OCFCD has developed a habitat management plan for preservation of open space and wildlife habitat in the Santa Ana Canyon below Prado Dam.

Right-of-way engineering is in progress for acquisition of over 1,600 acres of land for the Prado Dam feature. This land is required for the reservoir expansion and includes acquisition and relocation of residences, dairies, farming operations and related agricultural businesses. Plans are also being prepared for the required relocation of State Highway Route 71 in 1997.

The Local Sponsors, including the OCFCD, are continuing to provide cash contributions, acquire property and perform relocations to enable the U.S. Army Corps of Engineers to maintain its construction schedule for Fiscal Year 1997. The support of the Committee on Appropriations, Subcommittee on Energy and Water Development for appropriations to continue construction of the SARP is requested to provide citizens of Orange, Riverside and San Bernardino Counties with urgently needed flood protection as early as possible.

The San Juan Creek and Aliso Creek Reconnaissance Study has been initiated by the U. S. Army Corps of Engineers. An appropriation of approximately $370,000 is required for Fiscal Year 1997, to complete the study.

B. FLOOD POTENTIAL - THE SANTA ANA RIVER

☐ Headwaters in San Bernardino Mountains, 75 miles to Pacific Ocean.
☐ Drains 3,200 square miles in Orange, Riverside and San Bernardino Counties in Southern California.
☐ Flows through Cities of Colton, Riverside, Norco, Anaheim, Santa Ana, Orange, Fountain Valley, Costa Mesa and Huntington Beach.

FLOODS IN ORANGE COUNTY

☐ 1938, greatest flood of this century, flooded the entire northern half of Orange County. Almost all bridges destroyed including damages to agricultural land which is now urbanized.
☐ 1862, greatest flood on record, approximating the Corps Standard Project Flood.

ESTIMATED DAMAGE.

☐ LEVEES WOULD BE BREACHED: Flooding 110,000 acres from Anaheim to the ocean killing as many as 3,000 people and causing more than $15 billion in property damage.

☐ MAJOR TRANSPORTATION CORRIDORS INTERRUPTED: San Diego, Garden Grove, Santa Ana, Costa Mesa and Orange Freeways. Railroad Stations and Track.

☐ MAJOR PUBLIC FACILITIES WOULD BE INUNDATED: Hospitals, Shopping Centers, Colleges, Sanitation Plants, Stadiums, Disneyland, Knotts Berry Farm and Hotels.

MAJOR FEATURES

LOWER SANTA ANA RIVER

☐ ESTIMATED COST: $384 million ESTIMATED COMPLETION: Year 2000
☐ Improve 23 mile channel from Prado Dam to the Pacific Ocean
☐ Restore/Enhance 92 acre(8-acre mitigation)wetlands
☐ Acquire 1,123 acres of canyon lands to ensure safe releases from Prado Dam and provide open space habitat
☐ Relocate various utilities
☐ Modify 34 bridges

PRADO DAM

☐ ESTIMATED COST: $472 million, construction is unscheduled
☐ Raise the dam elevation from 566 feet to 594.4 feet (increase of 28.4 feet)
☐ Increase reservoir area from 6,695 acres to 10,256 acres
☐ Impoundment increase from 212,000 acre-feet to 362,000 acre-feet
☐ Increase capacity of outlet gates from 9,200 cfs to 30,000 cfs
☐ Acquire over 1,600 acres of property rights for reservoir expansion
☐ Relocate or protect 30 various utility lines
☐ Raise State Highway Route 71

SEVEN OAKS DAM

☐ ESTIMATED COST: $364 million ESTIMATED COMPLETION: Year 1999
☐ 550-foot high , earth-rockfill dam, 2,980 feet long
☐ Gross reservoir capacity of 145,600 acre- feet
☐ Reduces peak inflow of 85,000 cfs to a peak outflow 7,000 cfs
☐ Acquire about 4,00 acres of land in fee or easement
☐ Relocate powerhouse, flume and transmission line, spreading basins, waterwells

D. SUMMARY OF PROJECT PROGRESS

LOWER SANTA ANA RIVER

The U.S. Army Corps of Engineers has completed approximately 16.6 miles of channel improvements from the River's ocean outlet to the City of Orange. For project mitigation, over 92 acres have been designated as marshland restoration areas. The Talbert Channel outlet has been relocated a thousand feet up the coast to provide for a wider Santa Ana River outlet. A new bridge was completed over the relocated Talbert Channel outlet to restore State Beach parking lost when the new outlet was installed.

The OCFCD has also initiated preparation of the Santa Ana River Canyon Habitat Management Plan and is working with the U.S. Army Corps of Engineers on the development of a recreation plan to increase recreational use of the Santa Ana River Trail. The OCFCD has been pushing ahead to help the U.S. Army Corps of Engineers expedite the Lower Santa Ana River construction schedule by acquiring over 112 acres of rights-of-way and has arranged for the relocation of over 28 utility lines and 5 oil/gas lines and wells. Of the 34 bridges requiring modification for the SARP, 26 bridges have been modified to date including replacement of the Pacific Coast Highway Bridge in Newport Beach, the Hamilton-Victoria Bridge in the Cities of Costa Mesa and Huntington Beach, the Harbor Blvd. Bridge in Santa Ana and the Katella Avenue Bridge in the City of Anaheim.

SEVEN OAKS DAM

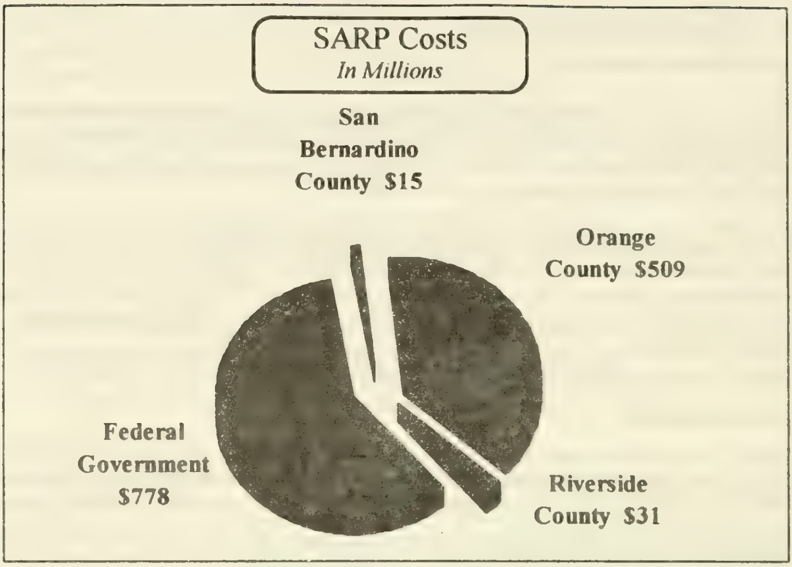
The U.S. Army Corps of Engineers has completed excavation and placed the concrete lining for the intake structure, gate chamber and outlet tunnel. Construction of the cofferdam, approach channel and access roads are complete. Construction on the dam embankment and outlet works are underway. Southern California Edison has completed the relocation of transmission towers. Local Sponsors have acquired possession of 1,700 acres for project mitigation and an additional 2,270 acres for borrow sites, haul roads and the dam site. Sponsors have also started implementation of a mitigation lands management program to facilitate protection and propagation of an endangered species. Agreement has been reached with the Southern California Edison Company for the relocation of transmission lines and a hydroelectric plant and related flume out of the new Seven Oaks Dam reservoir area.

PRADO DAM

OCFCD has initiated a program for acquisition of about 500 parcels under 260 ownerships. Survey and right-of-way engineering are underway. Hardship claim procedures have been established. Thirteen properties have been acquired, including three parcels under the hardship procedure. Preparation of plans for the relocation of State Highway Route 71 is underway, with construction planned to begin in the summer 1997.

E. PROJECT COSTS

The cost of the SARP is currently estimated by the U.S. Army Corps of Engineers to be $1.333 billion. Allocation of project costs amongst the Federal Government and the Local Sponsors is illustrated by the chart on the following page.



SAN JUAN CREEK

San Juan Creek is the largest watershed in Orange County, with a tributary area of 176 square miles. The creek begins at elevation 3,240 feet and traverses 29 miles on its way to the Pacific Ocean adjacent Doheny State Beach and Dana Point Harbor, two significant recreational resources of Orange County.

Its tributaries include Trabuco Creek, with a drainage area of 55 square miles and Oso Creek, with a drainage area of 16 square miles. Trabuco Creek falls over 4,100 feet in a 22 mile journey to its confluence with San Juan Creek. Oso Creek falls 1,500 feet from its headwaters to its confluence with Trabuco Creek.

The watershed is largely undeveloped with the exception of areas in the Cities of Mission Viejo, Laguna Hills, Laguna Niguel and San Juan Capistrano. There is a mix of natural watercourse and engineered flood control facilities and areas of degraded wetlands in the vicinity of the Pacific Ocean.

ALISO CREEK

Aliso Creek has a watershed of 35 square miles and falls some 2,280 feet from its headwaters to the Pacific Ocean, in the City of Laguna Beach.

The Reconnaissance Study of San Juan Creek and Aliso Creek will address watershed planning issues and identify environmental enhancement opportunities on these important water resources.

SUMMARY

In summary Mr. Chairman, we thank you for the opportunity to testify before your Subcommittee and respectfully request the support of Subcommittee and the Committee on Appropriations for an appropriation to continue construction on the Santa Ana River Mainstem Project and to complete the Reconnaissance Study on San Juan Creek and Aliso Creek.

PREPARED STATEMENTS OF DICK LYON, MAYOR, CITY OF OCEANSIDE, CA

Dear Chairman Domenici and Members of the Subcommittee:

The City of Oceanside, California requests your support for $500,000 in fiscal year 1997 to enable the Secretary of the Interior to assist in preconstruction, engineering and design work associated with the expansion of the Mission Basin Brackish Groundwater Desalting Research and Development Project in Oceanside, California.

The City of Oceanside is seeking to expand the existing Mission Basin Brackish Groundwater Desalting Research and Development Project from a capacity of two million gallons per day to five million gallons per day. The total project is estimated to cost approximately $3,000,000.

This project is critical to the City of Oceanside because the City of Oceanside has no emergency water storage capacity. If the City of Oceanside lost access to water that is currently imported either from the Sacramento-San Joaquin Delta or the Colorado River due to an earthquake or other natural disaster, the City would only have enough water to provide its residents with a two hour emergency supply. The City is totally dependent upon imported water supplies, except for the two million gallons per day produced by the City's existing desalting demonstration facility.

With a five million gallon per day desalting plant, the City of Oceanside would be able to meet about 16 percent of the normal daily demand for water. Therefore, the proposed expansion will move the City of Oceanside in the direction of being more self-sufficient during times of drought or in the case of emergency interruptions in the delivery of imported water. Expansion of the desalting research and development project will also allow the City to provide Camp Pendleton, a vital military installation, with emergency water supplies.

Chairman Domenici and Members of the Subcommittee, no negative impacts on the environment have been identified that would result from the expansion of the desalting facility. The Mission Groundwater Basin will not be overdrawn by the expansion of the desalting plant. The Mission Groundwater Basin has a storage capacity of about 92,000 acre feet and has an average inflow of about eight million gallons per day. In addition, the salts from the plant will be disposed of directly into the ocean, which contains levels of dissolved solids and salts that are five to ten times the levels found in the water that will be discharged form the desalting plant.

Thank you for the opportunity to testify and for your consideration of this request.

Dear Chairman Domenici and Members of the Subcommittee:

The City of Oceanside requests your support for completion of the San Luis Rey River Flood Control Project in fiscal year 1997. The project is 90% complete, but construction has been delayed as the result of the need to meet environmental mitigation requirements and to modify the authorization for the project. All environmental clearances have been received from the U.S. Fish and Wildlife Service, and a request has been made to modify the authorization limit for the project in the Water Resources Development Act now pending. The City of Oceanside's request is two-fold: to request that the Committee increase the Section 902 maximum project cost limit to $81,600,000, in the event that the Water Resources Development Bill does not move forward, and secondly to appropriate $6,500,000 in FY 1997 for the final phase of construction of the project.

The San Luis Rey River Flood Control Project provides 5.4 miles of double levee, stone protection with soft bottom, 1,330 feet of parapet walls, six interior drainage ponds, a five-mile bicycle trail, and habitat to mitigate for impacts to the endangered least Bell's vireo.

The remaining portion of the project to be constructed is the closure of a small segment of levee, construction of the lower pond, installation of relief wells, and additional environmental measures. With the authority and funding approved in the FY 1997 budget, construction of the project could be completed by December, 1996 before the onset of the rainy season.

The need to modify the Section 902 maximum project cost limit is due to unanticipated additional environmental requirements of the U.S. Fish and Wildlife Service and necessary design modifications to the project. These include relief wells, repairs and replanting due to flooding in 1993, 1994 and 1995, and various environmental modifications.

The City of Oceanside appreciates the strong support that the Subcommittee has provided to this project over the years. Completion of the San Luis Rey River Flood Control Project will afford flood protection to over 100 businesses in the Oceanside Industrial Park and Municipal Airport area. In addition, the flood control project will provide tremendous economic benefits to the citizens of Oceanside, as well as protecting life and property against devastating floods.

Thank you very much for your continuing support for this vital project.

PREPARED STATEMENT OF MARSHA TUROCI, CHAIRMAN, SUPERVISOR, FIRST DISTRICT, COUNTY OF SAN BERNARDINO, CA

Dear Chairman Domenici:

The Board of Supervisors of San Bernardino County, State of California, appreciates the opportunity to bring the following flood control and water conservation projects to your attention for consideration in the FY 1996-1997 Federal Budget.

A. Corps of Engineers

1.	Santa Ana River Mainstem Construction of Seven Oaks Dam and San Timoteo Creek.	$ 52,000,000
2.	San Antonio Creek Complete reconnaissance study and initiate feasibility study of flood control.	$ 50,000
3.	Seven Oaks Dam Water Conservation Study Complete feasibility study. Initiate preparation of plans and specifications.	$ 250,000
4.	Mission Zanja Creek Preparation of plans and specifications	$ 190,000

B. Bureau of Reclamation

1.	San Sevaine Creek Water Project PL84-934 Small Watershed Project Loan Program Add $3,000,000 to recommended FY 1996-1997 fiscal budget to start federal participation on project.	$3,000,000

The Board once again wishes to express its deep appreciation for your past and present support of these priority programs in San Bernardino County and also Orange and Riverside Counties.

SANTA ANA RIVER MAINSTEM PROJECT

Project Description

The Santa Ana River Project includes seven interdependent features. Mill Creek Levee, Oak Street Drain, and Reaches 1, 2, 3, 4, 5, 6 and 10 of the Lower Santa Ana River are complete. Additionally, the completion of Seven Oaks Dam, San Timoteo Creek, Prado Dam, Santiago Creek and the Lower Santa Ana River features will provide (a) the necessary flood protection from the standard project overflow within Orange, Riverside and San Bernardino Counties; (b) enhancement and preservation of marshlands and wetlands for endangered waterfowl, fish and wildlife species; (c) recreation amenities; and (d) flood plain management of the 30 miles of Santa Ana River between Seven Oaks Dam and Prado Dam. The Mainstem project is scheduled for completion by the year 2001.

San Bernardino County Features Status

Seven Oaks Dam: Intake structure excavation, Abutment stripping and Outlet Works/Diversion Tunnel contract is complete. Embankment and Spillway construction contract was awarded in March 1994. Construction is progressing satisfactorily and is 36% complete as of December 1995.

Mill Creek Levee: Project was completed in April 1992.

San Timoteo Creek: San Timoteo Creek Reach I was awarded in September 1994 and will be completed in May 1996.

Funding Required

To continue construction of the Mainstem Project in FY 1996/97, the Corps of Engineers will require an additional $52,000,000 in federal funding along with cash contributions of $3,500,000, lands, and various services from local sponsor.

PROJECT AUTHORIZED:	Public Law 94-587, Section 109, Approved October 22, 1976 Public Law 99-662, Water Resources Development Act of 1986
TOTAL PROJECT COST:	$1.4 billion - Includes $473 million local share

PRESIDENT'S BUDGET REQUIREMENT Fiscal Year 1996/97: $ 52,000,000

REQUESTED ACTION: **Approval of $52,000,000 for Santa Ana River Mainstem, including Seven Oaks Dam and San Timoteo Creek projects in San Bernardino County.**

SAN TIMOTEO CREEK

Project Description

The San Timoteo Creek is a major tributary to the Santa Ana River in the east San Bernardino Valley. At the downstream end of a large watershed of approximately 126 square miles, the existing creek flows through the cities of Redlands, Loma Linda, and San Bernardino before discharging into the Santa Ana River. The existing creek in all three cities has an earthen bottom and partially improved embankments reinforced with rail and wire revetments.

Major storm flows along the creek in 1938, 1961, 1965, 1969, and 1978 caused considerable damage to the creek itself as well as overtopping the banks and causing loss of life and severe property damage.

The Energy and Water Development Appropriations Act of 1988 authorized improvement of San Timoteo Creek as part of the Santa Ana River Mainstem Project. The improvements include the construction of approximately 5.5 miles of concrete lined channel from the Santa Ana River upstream through the Cities of San Bernardino, Loma Linda and Redlands plus the construction of debris retention facilities at the upstream end of the project in the form of in-channel sediment storage basins.

Estimated Project Cost

The total estimated project cost is $58,000,000 with the federal participating cost at 75% or $43,500,000 and the local participating cost at 25% or $14,500,000.

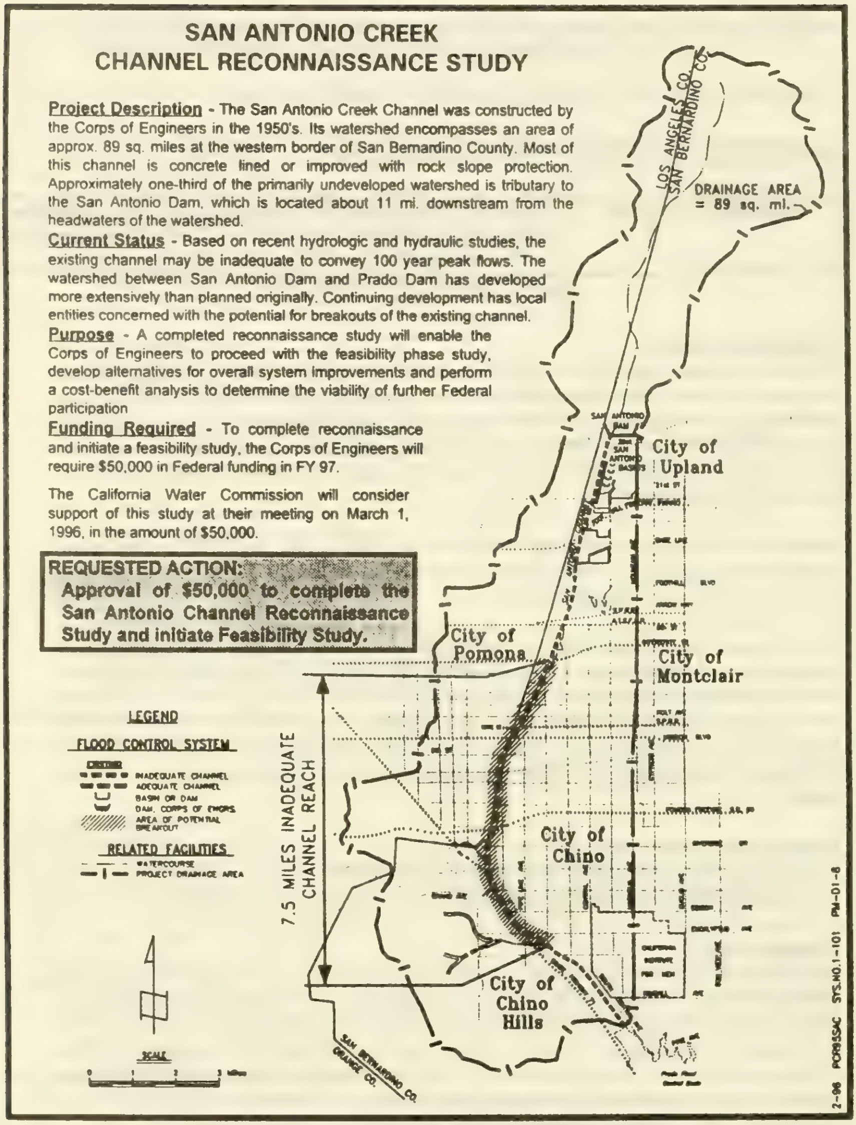
Project Status

The Corps of Engineers awarded a contract in September 1994 for Reach I of this project. Reach I construction site encompassed 0.7 mile between Interstate 10 downstream to the confluence of the Santa Ana River. Waterman Avenue bridge will be replaced in this phase. Reach I construction is scheduled for completion in May 1996 at a total cost of approximately $7.5 million. Reach II Plans and Specifications have been completed while Plans and Specifications for Reach III are in progress.

Estimated Project Schedule

Completion of Feasibility Study	FY 1988/89
Preparation of Final Special Report	FY 1989/90
Basis for Design Report	FY 1990/91 - FY 1991/92
Right-of-Way Acquisition	June 1992 - December 1996
Engineering Design, Plan, and Specifications	May 1992 - November 1996
Construction Start (approximate)	September 1994
Project Completion (approximate)	October 1999

REQUESTED ACTION: **Approval of continued funding for the San Timoteo Creek Project.**



SAN ANTONIO CREEK CHANNEL RECONNAISSANCE STUDY

Project Description - The San Antonio Creek Channel was constructed by the Corps of Engineers in the 1950's. Its watershed encompasses an area of approx. 89 sq. miles at the western border of San Bernardino County. Most of this channel is concrete lined or improved with rock slope protection. Approximately one-third of the primarily undeveloped watershed is tributary to the San Antonio Dam, which is located about 11 mi. downstream from the headwaters of the watershed.

Current Status - Based on recent hydrologic and hydraulic studies, the existing channel may be inadequate to convey 100 year peak flows. The watershed between San Antonio Dam and Prado Dam has developed more extensively than planned originally. Continuing development has local entities concerned with the potential for breakouts of the existing channel.

Purpose - A completed reconnaissance study will enable the Corps of Engineers to proceed with the feasibility phase study, develop alternatives for overall system improvements and perform a cost-benefit analysis to determine the viability of further Federal participation

Funding Required - To complete reconnaissance and initiate a feasibility study, the Corps of Engineers will require $50,000 in Federal funding in FY 97.

The California Water Commission will consider support of this study at their meeting on March 1, 1996, in the amount of $50,000.

REQUESTED ACTION:
Approval of $50,000 to complete the San Antonio Channel Reconnaissance Study and initiate Feasibility Study.

SAN SEVAINE CREEK WATER PROJECT

Project Description

The San Sevaine Creek Water Project, as proposed, will provide environmental enhancements, water conservation and flood control facilities in the western portion of the San Bernardino Valley.

A 137-acre area is being set aside to protect a sensitive plant community, wetlands and wildlife enhancement. In addition, several water conservation basins will percolate an estimated 25,000 acre feet of storm water runoff per year into the Chino Groundwater Basin benefiting agricultural, municipal and industrial water users in the Valley. This project will create water storage and conservation facilities which will provide approximately 4341 acre-feet of combined storage and help reduce the need for purchasing water.

Project Status

On August 23, 1994, the Initial Study required under CEQA for the Project was filed for public comment. On October 25, 1994, the County of San Bernardino (County) Board of Supervisors (Board) certified the Negative Declaration under CEQA and Mitigation Monitoring Plan. The appeal period for challenges to that action has passed. The Final Environmental Assessment required under NEPA received a "Finding of Non Significant Impact" (FONSI) from the Bureau of Reclamation(Bureau) on August 4, 1995. On September 12, 1995, the Board adopted the Final Loan Application Report/Environmental Assessment (Final Report). Twenty copies of the Final Report were provided to the Bureau on September 14, 1995 for final processing. On January 25, 1996, Bureau officials advised "The County has met all requirements under the current Small Reclamation Projects Act (SRPA) program. The project is technically qualified for funding as proposed." A "LETTER OF AGREEMENT" was executed by the County's Board of Supervisors on February 13, 1996 to effect the County's intention to proceed with the Federal Loan and Grant.

Although some levee, channel and interim basin work has been done at various locations on this major drainage system, federal assistance in the form of a Small Project Loan is urgently needed to allow for the construction of major improvements that will provide a fully integrated and functional project. Without these funds, it will be many decades before local interests can accrue sufficient funds to continue this vital project.

The California Water Commission has consistently since the late 1980's supported the construction of this project.

FEDERAL AUTHORITY	Public Law 84-984, as amended 1956
B of R GRANT CONTRIBUTION:	Approximately $27.4 million
B of R LOAN CONTRIBUTION:	Approximately $19.2 million
TOTAL B of R PROJECT (not additive):	**Approximately $52.9 million**
TOTAL LOCAL CONTRIBUTION:	$33.7 million

REQUESTED ACTION: Approval of $3,000,000 for FY 1996/97 to start federal participation on the San Sevaine Creek Water Project.

BOARD OF SUPERVISORS

RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

RESOLUTION NO. F96-7
SUPPORTING FEDERAL APPROPRIATIONS
FOR FLOOD CONTROL PROJECTS FOR FISCAL YEAR 1997

WHEREAS, the United States House of Representatives Committee on Appropriations, Sub-Committee on Energy and Water Development, and the United States Senate Committee on Appropriations, Sub-Committee on Energy and Water Development are holding hearings on March 6, 1996 to consider appropriations for Flood Control and Reclamation Projects in California for Fiscal Year 1997; and

WHEREAS, the Riverside County Flood Control and Water Conservation District (District) supports the continuation of construction of the Santa Ana River Mainstem project, the initiation of design for the project to reduce flooding and bank destruction along the Santa Ana River at Norco Bluffs, California, the initiation of a project modification report for the Lake Elsinore Outlet Channel for environmental enhancement at Gunnerson Pond, Lake Elsinore, California, the initiation of a flood plain maintenance plan study for Murrieta Creek, Riverside County, California, under the Section 22 Planning Assistance to States program and the initiation of a reconnaissance study of watershed management and flood control needs in the Santa Margarita River watershed in Riverside and San Diego Counties, California; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the Riverside County Flood Control and Water Conservation District in regular session assembled on February 27, 1996, that they support appropriations by Congress for Fiscal Year 1997 for the following projects:

U.S. ARMY CORPS OF ENGINEERS

Construction - General Santa Ana River Mainstem	$52,000,000
Preconstruction Engineering and Design Santa Ana River at Norco Bluffs	$180,000
Section 1135, Environmental Enhancement Projects Lake Elsinore, Gunnerson Pond	$490,000
Section 22, Planning Assistance to States Murrieta Creek Floodplain Maintenance Plan	$150,000
Reconnaissance Study Santa Margarita River Basin	$750,000

BE IT FURTHER RESOLVED that the Interim General Manager-Chief Engineer is directed to distribute certified copies of this resolution to the Secretary of the Army, Members of the House of Representatives Committee on Appropriations and Sub-Committee on Energy and Water Development, the Senate Committee on Appropriations and Sub-Committee on Energy and Water Development, and the District's Congressional Delegation - Senators Dianne Feinstein and Barbara Boxer, and Congressmen Ron Packard, Ken Calvert and Sonny Bono.

ROLL CALL:
Ayes: Buster, Tavaglione, Ceniceros, Wilson, Mullen
Noes: None
Absent: None

The foregoing is certified to be a true copy of a resolution duly adopted by said Board of Supervisors on the date therein set forth
GERALD A. MALONEY Clerk of said Boar
By [illegible]

SANTA ANA RIVER - MAINSTEM

The Water Resources Development Act Of 1986 (Public Law 99-662) authorized the Santa Ana River - All River project which includes improvements along the river in Orange County, California, enlargement of Prado Dam and Reservoir near Corona, construction of a new dam (Seven Oaks) near the mouth of Upper Santa Ana Canyon, improvement of the Oak Street Drain Channel in Corona, improvement of Santiago Creek in Orange County and various mitigation features as set forth in the Chief of Engineers' Report to the Secretary of the Army. The Board of Supervisors of Orange, Riverside and San Bernardino Counties are in support of this needed project and have so stated in past resolutions to Congress.

The Local Cooperation Agreement (LCA) was signed in December 1989 by the three local sponsors and the Army. The first of five construction contracts started on the Seven Oaks Dam in the Spring of 1990. The dam project will be complete in the year 2000. Acquisition has been completed on enhancement lands near the mouth of the river channel and the local sponsors continue acquisition for other elements of the project. Construction has been completed on the Oak Street Drain and the Mill Creek elements. Construction has been completed on three reaches of the lower Santa Ana River Channel and continues on two other reaches. We understand the President will recommend $52 million dollars be appropriated in FY 1997 to continue this important project.

We support the President's recommendation for the Santa Ana Mainstem construction and urge the Committee to approve the funds in the Fiscal Year 1997 appropriations.

SANTA ANA RIVER AT NORCO BLUFFS

The Santa Ana River passes along the northerly border of the City of Norco. Norco is situated on a bluff that forms the left bank of the river. The bluff varies in height from 46 to 96 feet above the streambed.

The floods of January and February 1969 along the Santa Ana River caused flow impingement on the river bank which undermined the toe of the slope, causing sloughing of the bank. Approximately 50 to 60 feet of the bluff retreated to the south. No improvements were lost at that time but the threat to improvements from future river actions became apparent. The floods of 1978 and 1980 impinged further, causing another 30 to 40 feet of retreat of the bluff. One single family residence was undermined and destroyed because of this damage.

A provision in the Water Resources Development Act of 1990, PL 101-640, directed the Secretary of the Army to conduct a study of the feasibility of improvement's along the Santa Ana River at Norco Bluffs to prevent further damage to the bluffs by the river.

The Corps found sufficient justification to proceed with a feasibility study in their reconnaissance study. A cost shared feasibility study agreement has been executed by the Corps and the District and the study will be completed this fiscal year. The total feasibility study costs are estimated to be $1.85 million. Congress has appropriated $925,000 to date for this study.

We are requesting Congress, through the Committee, to appropriate $180,000 in FY 1997 to provide sufficient Federal funding to initiate design work in FY 1997 on the Santa Ana River at Norco Bluffs project. The Riverside County Flood Control and Water Conservation District is fully prepared to meet its cost sharing obligation.

SANTA MARGARITA RIVER BASIN

The Santa Margarita River Basin lies in the south and northwesterly areas of Riverside and San Diego Counties, respectively. Murrieta Creek passes through the cities of Murrieta and Temecula in Riverside County. It then combines with Temecula Creek to form the Santa Margarita River which flows into San Diego County, through the Camp Pendleton Marine Base, and into the Pacific Ocean. Murrieta and Temecula experienced severe flood damage in January 1993, estimated in excess of ten million dollars, from Murrieta Creek overflow. Camp Pendleton also suffered extensive flood damage to facilities and aircraft due to overflow of the Santa Margarita River.

The requested Reconnaissance Study is needed to determine if there is justification for Federal interest in the study area. The effort will address watershed management, including flood control, environmental restoration, water conservation and supply, recreation and related purposes.

We request the Committee to approve $750,000 in Fiscal Year 1997 appropriations to undertake a Reconnaissance Study on the Santa Margarita River Basin.

MURRIETA CREEK

The District is also seeking the Corps' assistance in the development of a floodplain maintenance plan for the lower six miles of Murrieta Creek, under the Section 22, Planning Assistance to the States authority.

Severe flooding and resulting damages occurred in January 1993 in Temecula and Murrieta from overbank flooding of the creek possibly due to vegetative growth and attendant sediment build-up. Clearing and restoration work was undertaken following the flooding, but a plan is needed for creek/floodplain maintenance that will satisfy the requirements of the various regulatory agencies until such time as permanent improvements can be constructed.

We request the Committee to approve a Fiscal Year 1997 appropriation of $150,000 under the authority of Section 22, Planning Assistance to the States, in order to prepare a floodplain maintenance plan.

GUNNERSON POND

In 1995, the Corps of Engineers Los Angeles District began an investigation under Section 1135 to evaluate the possibility of a wetlands restoration project at Gunnerson Pond. Currently, the South Pacific Division is reviewing the Preliminary Restoration Plan for the project. The project location is in the Lake Elsinore region of Riverside County, California. The site is located north of the City of Lake Elsinore, at Gunnerson Pond, adjacent to and downstream of the Corps-built Lake Elsinore Outlet Channel, a Section 205 project.

The proposed modification of the outlet channel would allow water from Lake Elsinore and from a nearby wastewater treatment plant to flow into Gunnerson Pond, creating a permanent wetland in that area.

The purpose of this modification would be to enhance and develop waterfowl habitat, endangered species habitat, emergent wetland vegetation, and riparian vegetation. The proposed project would significantly expand and enhance existing wetland and riparian areas along the Temescal Creek floodplain. Currently protected habitat areas within the immediate vicinity of the outlet works include approximately 40 acres of riparian and marsh wetlands. Construction of this project would permanently protect and enhance an additional 60 acres of wetlands (a 65% increase in acreage). The value of existing habitat at Gunnerson Pond would be increased substantially, by at least 80-90%. The habitat value of adjacent wetlands would also be increased by providing a large expanse of contiguous habitat that would tie into the wildlife corridor provided by Temescal Creek.

We request the Committee to approve $490,000 in Fiscal Year 1997 appropriations, to prepare a Project Modification Report and to initiate preconstruction, engineering and design for the Gunnerson Pond project under the authority of Section 1135, within available funds.

PREPARED STATEMENT OF THE CITY OF HUNTINGTON BEACH, CA

The City of Huntington Beach is seeking a $900,000 appropriation to initiate a water infrastructure reliability study. Public Law 101-60 authorizes the U.S. Army Corps of Engineers to conduct in consultation with the Federal Emergency Management Agency (FEMA) special studies in southern California. These studies assess infrastructure such as water, sewer and drainage systems as well as the restoration of these systems to full service following major seismic events. Studies similar to this proposed study are currently underway in Southeast Los Angeles County and the San Gabriel Valley under the local sponsorship of the cities of Norwalk and Arcadia/Sierra Madre.

Study Overview

The Huntington Beach special study will focus on water, sewer and drainage infrastructure systems in the City potentially affected by major seismic activity on the Newport/Inglewood Fault which bifurcates the community. Primary elements of the study would include: groundwater basin optimization and effects of fault systems thereon; seismic reliability of water storage facilities and water systems; seismic reliability of sewerage system elements including collection and trunk facilities and pumping stations; seismic reliability of closed and open channel storm drain systems and pumping stations; and development of alternative recycled and imported water backup supplies for the area.

A more detailed breakdown of the proposed study would include

- **Groundwater Supply Reliability**: An evaluation of the potential effects upon groundwater supply reliability in the Huntington Beach area due to faulting and major seismic events.
- **Seismic Reliability of Water System**: Analysis and assessment of seismic upgrading of water system facilities in the area including: reservoirs, transmission and distribution pipelines, bridge crossings, pump stations, wells, control centers and imported supply facilities.
- **Seismic Reliability of Sewer System**: Analysis and assessment of seismic upgrading of sewer system facilities in the area including: collection and trunk pipelines, siphons and channel crossings, pump stations and control systems
- **Seismic Reliability of Drainage System**: Analysis and assessment of seismic upgrading of drainage system facilities in the area including: lateral and main pipeline systems, open channels, pump stations and control systems
- **Backup Emergency Water Supplies**: An assessment of the potential to provide backup level fire protection in high value areas of the City through the backup source of recycles water through the Green Acres Regional system of the Orange County Water District.
- **Regional Water Supply Augmentation**: An analysis of the feasibility of expanded use of regional imported and groundwater supplies through the West Orange County Water Board facilities as additional firm backup supply to the area.
- **Temporary and Standby Power Assessment**: An evaluation of temporary and standby power requirements for all water, sewer and drainage pumping system load demands.
- **Comprehensive Emergency Preparedness Plan**: Development of a comprehensive Emergency Preparedness Plan in conjunction with the City's Fire and Police Departments to ensure that fully coordinated efforts of staff, materials, equipment and communication systems are brought to the fore in the event of a major seismic occurrence.
- **Capital Outlay Requirements**: Development of a complete Capital Improvement Program (CIP) based upon the results of the analyses and study elements noted above to bring seismic protection reliability to the area's water, sewer and drainage infrastructure. The CIP would have a planning horizon of no less than twenty (20) years for full program implementation. Funding strategies for Federal, State and Regional assistance to finance infrastructure system improvements would be developed, including new legislative strategies where deemed appropriate.
- **Economic Base Study**: A survey level economic base study to ascertain the benefit versus cost of planned improvements due to potential damage to water, sewer and drainage system elements from a major seismic event.

This study is critical to the water infrastructure of our city. We ask the Committee to support this study with the appropriation of $900,000 in Fiscal Year 1997.

PREPARED STATEMENT OF KEITH HANSEN, DIRECTOR, COLUSA BASIN DRAINAGE DISTRICT

COLUSA BASIN DRAINAGE DISTRICT

FY 1997 USBR Request: $ 400,000
FY 1997 Corps Request: $ 200,000

My name is Keith Hansen. I am a farmer, a County Supervisor, and a director of the Colusa Basin Drainage District.

The 650,000 acre Colusa Basin Drainage District, located on the west side of the Sacramento River, serves a large watershed exceeding one million acres. It covers three counties, Glenn, Colusa and northern Yolo Counties. It not only is a rich agricultural area, but a rich wildlife area as well, including three national wildlife refuges.

The District was formed to primarily address flooding problems. In 1995 alone, these three counties suffered an estimated 100 million dollars in damage and 1 death due to storms. In November, a majority of landowners voted to implement the District's Integrated Management Plan to address flood damage while obtaining other benefits of increasing groundwater supplies, surface water storage, and water for environmental and wildlife uses in the watershed.

Four projects have been initially selected to be developed to serve as a demonstration for integrated resources management: Two small reservoirs, a groundwater recharge detention basin, and management of the 75 mile Drain itself.
Utilizing the $250,000 appropriated for 1996, feasibility level analysis is being done on hydrologic, geophysical, natural resources and environmental issues; facility options, operations and economic feasibility.

The requested $400,000 Bureau funding will complete pre-project development and design, as well as the environmental work for construction of the conjunctive use demonstration projects.

Additionally, the District requests $200,000 for the U.S. Army Corps of Engineers to conduct a reconnaissance study to determine solutions to flooding problems due to inadequate channel capacities along the Drain and its tributaries. Moderately high stages in the Sacramento River prevent gravity flow from the drain to the river

causing widespread flooding to the area. The need exists to assess the drainage system and determine solutions to improve conveyance of flood flows into the Yolo Bypass.

Additionally, as part of the District's Integrated Resource Management Plan, the District desires to investigate opportunities to restore wetlands and environmental habitat in the basin.

We believe our Integrated Resource approach to solving a number of problems across a large area with the same dollar is a wise expenditure of public funds.

Thank you for your continued support.

PREPARED STATEMENT OF NAT BINGHAM, HABITAT DIRECTOR, PACIFIC COAST FEDERATION OF FISHERMAN'S ASSOCIATIONS

Mr. Chairman and honorable members of the subcommittee, I am pleased to present two requests for funding important salmon restoration programs in California.

Winter-run Chinook Salmon Captive Broodstock Program $500,000
The Subcommittee has been supporting this key program which is now in its fifth year. The captive broodstock program provides an essential biological insurance policy for winter-run chinook salmon. This unique stock of salmon is listed as endangered under the Federal Endangered Species Act. This year the program has begun to supplement the natural production of winter-run n the Upper Sacramento River. In addition, a genetic stock identification methodology has been developed as a spin-off from the program which is helping to identify the presence or absence of winter-run juvenile salmon at the Delta pumping plants. A progress report on the program is attached.

Community Coho and Spring-run Chinook Salmon Restoration Projects $500,000
The Subcommittee supported this program of grants for community based salmon restoration projects by the National Fish and Wildlife Foundation in FY1996.
Were it not for the efforts of landowners in The Mill, Deer, and Butte Creek watersheds to organize conservancies and tale the lead in planning and implementing, salmon habitat restoration, Spring-run chinook salmon would probably now be a listed species. A wide range of projects have been undertaken to restore the spring run. A report on the activities of the Spring Run Chinook Salmon Work Group is attached Coho Salmon have been formally proposed as a candidate species for ESA listing by the National Marine Fisheries Service. The Fish, Farm, and Forest Communities Forum has been incorporated as a non-profit entity by the timber, farm and fishing industries to address the issues relative to Coho Salmon restoration. The task of restoring coho salmon habitat in coastal watersheds is of great magnitude, which goes far beyond the modest level in this proposal. A wide variety of sources of both government and non government funding will be required. This proposal continues the process of getting this vital program on the ground.

EXECUTIVE SUMMARY

BACKGROUND

In response to critically low levels of Winter-Run Chinook Salmon in the Sacramento River during 1991, the Winter-Run Chinook Salmon Captive Broodstock Committee was initiated. Once numbering in the hundred of thousands each year, returns had plummeted to 191 fish. In order to save this unique and important salmon stock from extinction, a wide range of State and Federal fishery agencies joined with nongovernmental commercial and recreational fishing interests, as well as interested water users and the academic research community. This unprecedented coalition worked, by consensus, to develop the following goal:

PROGRAM GOAL

The goal of the captive broodstock program is to rear winter-run chinook salmon under controlled conditions until they become reproductively mature adults. Mature salmon would then be used as hatchery broodstock for continued propagation of the race. The captive breeding program provides:

- An insurance policy against extinction and loss of genetic material;
- A source of eggs and sperm for the Coleman National Fish Hatchery winter-run propagation program;
- A source to supplement naturally the few remaining spawning salmon;
- A means to "buy time" until habitat conditions in the Sacramento River improve;
- An egg and fry source for experimental studies; and
- The maximization of future options for the recovery of the species.

10-YEAR PROGRAM PLAN

The captive broodstock program plans to recover winter-run salmon by:

- Holding 1,000 juvenile winter-run salmon propagated at Coleman National Fish Hatchery in captivity each year;
- Transferring those juvenile salmon to fresh and salt water rearing facilities at Bodega Marine Laboratory and the Steinhart Aquarium at The California Academy of Sciences, San Francisco;
- Raising the fish for 2-5 years until maturity;
- Returning the adult salmon to Coleman NFH to be spawned; and
- Using the resulting gametes to increase the winter-run population.

A genetic research and management plan was developed to:

- Insure that the effective population size of the winter-run was not reduced by artificial propagation, and
- Manage the Captive Broodstock Program to conserve genetic resources.

PROGRAM IMPLEMENTATION

Funding for the broodstock program has been provided by:

- U.S. Congressional Appropriations
    - **Department of Interior**
        - U.S. Fish and Wildlife Service
        - U.S. Bureau of Reclamation
    - **Department of Commerce**
        - National Marine Fisheries Service
- State of California
    - **Department of Water Resources**
    - **Department of Fish and Game**
    - Drought relief funds
    - Salmon Stamp program (fishing industry self tax)
- Nongovernmental Funds
    - **National Fish and Wildlife Foundation**
    - **Bay-Delta Agreement Category III program**

Implementing Agencies:

U.S. Fish and Wildlife Service, Coleman National Fish Hatchery
California Academy of Sciences, Steinhart Aquarium
University of California, Davis, Bodega Marine Laboratory

In 1993 Congress passed HR 2457, authorizing the winter-run captive broodstock program at a level of $1 million annually.

PROGRAM ACHIEVEMENTS

After four years, the broodstock program has:

1. Rapidly established interagency/project coordination;
2. Literally built rearing facilities at Bodega Marine Laboratory and the Steinhart Aquarium around the juvenile salmon as they were being raised;
3. Developed long-term feeding and rearing strategies;
4. Developed pathogen detection methods and fish health management protocols to improve survivorship;
5. Provided original genetic research resulting in:
    - A method using existing technology to identify the gender of a juvenile salmon;
    - Provision of genetic management direction to the broodstock
6. Provided 30,000 salmon eggs to Coleman NFH;
7. The broodstock program is holding in captivity:

At Bodega Marine Laboratory:

Brood year 1991	52	adult salmon
Brood year 1992	25	maturing salmon
Brood year 1993	249	year 2 salmon

At Steinhart Aquarium:

Brood year 1993	256	year 2 salmon
Brood year 1994	619	yearling salmon

CONCLUSION

As it approaches completion of the first half of its 10-year duration, the Winter-Run Chinook Salmon Captive Broodstock Program has overcome many developmental problems, has efficiently established the infrastructure necessary to continue the program at full production status, and can do so until such time as the necessity for the program no longer exists. Most importantly, this program has helped begin the recovery of this unique stock of salmon.

WINTER-RUN CHINOOK SALMON CAPTIVE BROODSTOCK PROGRAM

SUMMARY OF PROPOSED 10 YEAR BUDGET

State Fiscal Year Federal Fiscal Year	1992-93 1993	1993-94 1994	1994-95 1995	1995-96 1996	1996-97 1997	1997-98 1998	1998-99 1999	1999-2000 2000	2000-2001 2001	2001-2002 2002	TOTAL
Steinhart Aquarium	222,592	89,448	173,004	113,985	88,437	107,648	85,427	88,648	93,031	96,583	1,158,803
Bodega Bay Marine Lab	489,702	607,213	565,059	513,401	547,589	646,727	655,367	700,616	712,010	749,968	6,187,652
Genetic Management/ Molecular Genetic Analysis	225,000	219,597	230,503	244,925	235,131	236,331	247,953	260,372	273,740	287,581	2,461,133
Genetic Management Subcommittee	41,000	42,000	43,000	24,000	25,000	26,000	26,000	27,000	28,000	29,000	311,000
Coleman National Fish Hatchery Operations & Maintenance	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000
TOTAL BUDGET	1,228,294	1,208,258	1,261,566	1,146,311	1,146,157	1,266,706	1,264,747	1,326,636	1,356,781	1,413,132	12,618,588
Funds Acquired											
U.S. Dept. of Interior											
Fish and Wildlife Service	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	2,500,000
Bureau of Reclamation	100,000 200,000	300,000	125,000	300,000	500,000[2]						1,025,000
U.S. Dept. of Commerce											
NOAA	500,000	237,500	237,500	0	[2]						975,000
State of California											
Department of Fish and Game	241,291	200,000									441,291
Salmon Stamp	25,000	10,000	9,999	15,000	15,000[2]						69,999
Department of Water Resources DWR via NFWF	75,500	176,335 14,300	34,165 200,000	125,000	100,000[2]						411,000 214,300
Nongovernmental Funds											
National Fish and Wildlife Fdn		7,150	121,200								128,350
Category III				300,000	300,000[2]						
Subtotal - Funds Acquired	1,391,791[1]	1,195,285[1]	977,864[1]	990,000[1]	250,000	250,000	250,000	250,000	250,000	250,000	6,064,940
ADDITIONAL FUNDS NEEDED	+163,497[1]	12,973	283,702	156,311	896,157	1,016,706	1,014,747	1,076,636	1,106,781	1,163,132	6,553,648

Revised: February, 1996

[1] Funds acquired are allocated to multi-year contracts and are not spent in one fiscal year.

[2] Preliminary amounts, not yet approved.

Winter-Run Chinook Salmon Captive Broodstock Program 1995 Progress Report

Nat Bingham, Pacific Coast Federation of Fishermen's Associations; Kristen Arkush and Paul Siri, U.C. Davis Bodega Marine Laboratory; and Randy Brown, Department of Water Resources

In response to critically low levels of winter-run chinook salmon in the Sacramento River during 1991, the Winter-Run Chinook Salmon Captive Broodstock Committee was initiated. Once numbering more than a hundred thousand spawning adults, returns had plummeted to 191 fish. To help save this unique and important salmon stock from possible extinction, several state and federal fishery agencies joined with commercial and recreational fishing interests, water users, and the academic research community to develop and implement a captive broodstock program. This coalition worked, by consensus, to develop its goals.

The primary goal of the captive broodstock program is to prevent the loss of the genetic resource contained in the winter run genome should the wild run become extinct. A secondary goal is to help prevent extinction by producing gametes that can be fertilized by wild fish gametes collected as part of the Coleman National Fish Hatchery winter run propagation program. The goals are to be met by rearing winter-run chinook salmon under controlled conditions until they become mature adults. Mature salmon would then be used as hatchery broodstock for continued propagation of the race.

The captive breeding program provides insurance against extinction and loss of genetic material, a source of eggs and sperm for the Coleman winter-run propagation program, a source to supplement naturally the remaining spawning salmon, a means to "buy time" until habitat conditions improve in the Sacramento River, an egg and fry source for experimental studies, and a way to maximize options for the recovery of the species.

The captive broodstock program plans to assist in winter-run salmon recovery by:

- Holding up to 1,000 juvenile winter-run salmon propagated at Coleman Hatchery in captivity each year;
- Transferring those juvenile salmon to fresh and salt water rearing facilities at Bodega Marine Laboratory and Steinhart Aquarium at the California Academy of Sciences, San Francisco;
- Raising the fish for 2-5 years (until maturity);
- Returning the adult salmon to Coleman Hatchery to be spawned;
- Using the resulting gametes to increase the winter-run population.

A genetic research and management plan was developed to:

- Ensure that the effective population size of the winter-run was not reduced by artificial propagation, and
- Manage the Captive Broodstock Program to conserve genetic resources.

To achieve these goals, the committee had to respond to several challenges. One of the most difficult was disease control. In addition to expected problems such as bacterial kidney disease, a previously undescribed pathogen in the winter run termed rosette agent — a systemic protist — appeared in the 1991 broodyear. Infection with this parasite resulted in substantial mortality in the 1991 cohort. Long-term treatment methods for these pathogens required development of new care and feeding strategies in addition to new disease detection methods.

The program was put under a year-long quarantine while field investigations in the Sacramento River were initiated. In 1994, the rosette agent was found in wild fall-run chinook. This discovery lifted the quarantine on the captive broodstock gametes, and about 30,000 eggs were delivered to Coleman Hatchery in 1995. Current research focuses on nutrition and maturation to increase fertilization rates.

Funding for the broodstock program has been provided by: U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, National Marine Fisheries Service, Department of Water Resources, Department of Fish and Game salmon stamp program, and the National Fish and Wildlife Foundation. Category III, resulting from the 1994 Bay/Delta Agreement, will provide funding in 1996. Implementing agencies are: U.S. Fish and Wildlife Service, Coleman National Fish Hatchery, California Academy of Sciences, Steinhart Aquarium, University of California-Davis, Bodega Marine Laboratory. In 1993, Congress authorized the winter-run captive broodstock program at a level of $1 million annually.

After 4 years, the broodstock program has:

- Rapidly established interagency/project coordination;
- Built rearing facilities at Bodega Marine Laboratory and Steinhart Aquarium literally around the juvenile salmon as they were being raised;
- Developed long-term feeding and rearing strategies;
- Developed pathogen detection methods and fish health management protocols to improve survivorship;
- Provided original genetic research resulting in a method using existing technology to identify the gender of a juvenile salmon and provision of genetic management direction to the broodstock;
- Provided about 30,000 salmon eggs to Coleman National Fish Hatchery.

The broodstock program is holding in captivity:

Bodega Marine Laboratory

Brood year 1991	52 adult salmon
Brood year 1992	25 maturing salmon
Brood year 1993	249 year-2 salmon

Steinhart Aquarium:

Brood year 1993	256 year-2 salmon
Brood year 1994	619 yearling salmon

As it approaches the half-way mark, the 10-year Winter-Run Chinook Salmon Captive Broodstock Program has overcome many developmental problems, has established the infrastructure necessary to continue at full production status, and can do so until the program is no longer necessary. Most importantly, this program will contribute to the recovery of this unique salmon stock.

RESEARCH ACTIVITIES OF THE SACRAMENTO RIVER WINTER RUN CHINOOK CAPTIVE BROODSTOCK PROGRAM BODEGA MARINE LABORATORY AND STEINHART AQUARIUM

Principal Investigators: Dennis Hedgecock , Paul Siri and Kristen Arkush, BML; Ron Hedrick BML and Veterinary Medicine and Epidemiology, UCD; Loo Botsford, Wildlife & Fisheries Conservation Biology, UCD; Phillip Hedrick, Zoology, Arizona State University; John McCosker, Steinhart Aquarium, California Academy of Sciences

Postdoctoral Researchers: Michael Banks

Associated Staff: Barbara Baldwin, Scott Blankenship, Claus Brigmann, Kitty Brown, Kate Bucklin, Zack Burt, Leslie Hain, Zac Kain, Melissa Lerch, Karl Menard, Will Newman, Sheila Ryan, Bridget Wessa and David White

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This is the fifth year of a large inter-institutional, inter-agency project. The primary goal is to rear progeny from crosses of wild winter run chinook salmon, California's most imperiled salmon run currently listed as endangered by the U.S. Fish & Wildlife Service (USFWS) and the California Department of Fish & Game. These progeny (of a rapidly declining run of upper Sacramento River chinook) are to be reared to maturity in captivity to serve as an insurance program should the run experience further decline and as an enhancement program if the captive broodstock can reinforce the effective population size. Molecular genetic analysis will help to determine which crosses between captive broodstock and wild-caught adults will maximize genetic diversity

The project is anticipated to last for at least ten years Each year, approximately 1,000 presmolts are transferred to BML from the USFWS Coleman National Fish Hatchery (CNFH) where the wild animals are spawned Once the fish are seawater-adapted in the spring, a sub-group of 25% of each cohort is transferred to Steinhart Aquarium for further insurance and for public display. The BML portion of the project is divided into three major tasks. The Broodstock group led by Paul Siri, Kristen Arkush and Ron Hedrick rear the fish to maturity and determine environmental and fish health requirements with the goal of achieving mature fish with viable gametes. Dennis Hedgecock is the principal investigator for molecular genetic analysis.

Molecular Genetic Analysis

Molecular genetic tools developed for pedigree determination of the mixed captive, winter run chinook broodstock have been applied to facilitate a number of management decisions this past year. Allocation of Brood Year (BY) 91 offspring to family has enabled selection of candidate spawners with absolute confidence that mating between closely related individuals would be avoided No family related fitness differences were evident from both the maturation and survival data for this year class. A detailed study of the transmission genetics of microsatellites showed that all loci developed so far show simple co-dominant Mendelian inheritance

Our continued use of sex-linked polymerase chain reaction (PCR) primers for sex determination revealed a notable excess of females (on average eight females to one male) in BY 91 offspring for all fish living at age two years. We are currently exploring alternative explanations for this surprising result by determining the sex and pedigree of fish that had died before age two Sexing of wild-caught broodstock has found 15 males and 27 females among the candidate spawners for 1995. On another research front in collaboration with Dr. Kristen Arkush from the fish health section of the project, PCR amplification and DNA sequencing of the rosette agent 16S ribosomal RNA, has yielded resources for the development of screening protocols for disease management. Development of new microsatellite loci has received devoted attention which has resulted in 18 new loci. These, together with the six loci developed in our laboratory last year and 21 loci received in collaboration with other laboratories in Nova Scotia, Seattle and Anchorage bring the total number of loci to more than 40 loci. This greatly increases our power for analysis. These markers appear to be of great value for discrimination between the various runs of chinook salmon that utilize the Sacramento-San Joaquin River drainage system. Such discrimination has great importance for the conservation of winter run. The ability to allocate out-migrating juvenile fish to specific runs enables modification of water management policies in order to lessen the chance of loss of any particular run.

This past year we were able to add characterization of spring run to a database containing microsatellite frequency information for fall, late fall and winter run fish. Three alleles for one locus appear specific only to spring run, although they do not have high frequency in spring run. It remains clear that genotype frequency differences between runs indicate a strong potential for discrimination using mixed stock analysis.

We are in the process of converting from techniques which use radioisotopes to ones using fluorescence for visualization of microsatellite polymorphisms. A number of features associated with fluorescence technology increase the rate at which we are able to generate and process data. These advantages together with the obvious gains of not having to work with radioactivity improve the general nature of our working environment with a notable increase in efficiency.

Fish Disease and Broodstock

Research efforts this year focused on an important disease of the captive winter run chinook, caused by a systemic protist, the "rosette agent", which has contributed to morbidity and mortality in the fish held at both the Steinhart Aquarium and BML. A similar parasite has been detected in other Pacific salmonid populations. Following detection of the rosette agent in the captive population, the California Department of Fish and Game (CDFG) restricted the movement of infected fish and/or their gametes. While this agent has not been detected in wild winter run chinook, it was detected in returning late fall run chinook in 1995 at CNFH. The CDFG has since allowed movement of gametes from the captive broodstock back to CNFH, thereby assuring the continued contributions of the captive program to the propagation efforts. However, methods to detect the parasite, means to control infection, and the relative risk of spread of the disease to other populations continue to be investigated.

A sensitive method to detect the parasite was recently developed at the BML Fish Disease Laboratory in collaboration with the genetic analysis group. Using sequence information from another rosette agent isolate, a rosette agent-specific genomic DNA sequence can be amplified by the polymerase chain reaction (PCR). By this method, DNA from the rosette agent isolates from chinook reared in Puget Sound and from Atlantic salmon raised in a private hatchery in Santa Cruz, California were amplified, demonstrating the similarity among these isolates. The primers are specific for rosette agent DNA, and do not amplify host (salmon) DNA or DNA from other fish parasites tested to date (PKX, a myxosporean; *Loma salmonae*, a microsporidian). These primers will be used to amplify rosette agent DNA from host tissue, thereby providing a more sensitive detection method for the parasite.

Experiments are also underway to evaluate the efficacy of a rosette agent vaccine. *In vitro* cultures of the parasite were killed with formalin, then used to vaccinate yearling chinook held in freshwater. Another experiment in progress is designed to determine the relative susceptibility of 5 salmonid species (*Oncorhynchus mykiss*, *O kisutch*, *O tshawytscha*, *Salmo trutta*, and *Salvelinus fontinalis*) to infection by the rosette agent. Both of these experiments are being conducted at the University of California, Davis, Fish Disease Laboratory containment facility.

Assessment of the risk of disease to other salmonids by the rosette agent, as well as technological development in the tools of early detection and treatment for the disease will assist in the recovery efforts for the winter run chinook through the captive propagation program.

In June of 1995, the broodstock group began preparing for the maturation of the 1991 cohort, the first year class of captive winter run chinook reared at BML. The project began experimenting with ultrasound imaging as a non-invasive alternative to palpation for assessing gamete development. Separation of maturing fish from reproductively immature animals by ultrasound allows for segregation of spawning candidates and reduced handling of immature fish. This technique was first described for use in determining salmonid sex and maturation in Norway and is now part of routine aquaculture practice in that country. In June of 1995, Dr. Arkush visited the Norwegian Fish Farmers' Breeding Center at Kyrksæterøra to receive training in the use of ultrasound. The Sacramento River winter run chinook captive broodstock program will be the first project of its type in the U.S. to incorporate ultrasound imaging in husbandry practice. Anesthetized fish may be scanned using a dual frequency (5.0 and 7.5 MHZ) linear probe. Images can be saved digitally and imported into the project's computerized database. In this way, gonadal development and maturation of a particular fish can be followed over time. This information, along with genotypic analysis, can identify broodstock that might contribute to the winter run chinook propagation program.

The broodstock group continued efforts to rear the captive winter run chinook to maturity and to cryopreserve milt from precocious males. Leslie Hain, Karl Menard, and David White have cryopreserved milt successfully this year, and are now planning for long-term, large-capacity cryopreservation of milt. A special evening section of this year's colloquium on Endocrinological Contributions to Pacific Rim Aquaculture focused on the challenges of synchrony and spawning in salmon captive broodstock projects. This workshop was organized by the BML broodstock group and included salmon endocrinologists from numerous institutions throughout the world. Following discussions at this workshop the broodstock group is planning to investigate appropriate endocrine implants to stimulate and synchronize spawning. Additionally, the development of hatchery facilities at BML is underway to allow for on-site spawning. A hatchery would allow experimental tests of inbreeding depression and vertical transmission of the rosette agent, now identified in multiple year classes of captive winter run chinook.

Experiments to evaluate the efficacy of ozone to disinfect seawater for captive broodstock life support began in 1995. Ozone is produced using an OREC model SP3-AR ozonator, with a model DM-100 monitor. An initial design to treat seawater effluent involved batch treatment of water in an in-ground 1500 gallon tank with ozone bubbled into the water. Measurements of total residual oxidants by the indigo method and bactericidal activity of the oxidants by bacterial plate count showed that this initial treatment regime was ineffective. A newly installed Mazzei venturi in-line injection system is being evaluated with promising results.

Summary

To date, the experimental nature of the project, as to whether or not the progeny of spawned wild winter-run could be raised to maturation and harvested for gametes, has been addressed. Five cohorts, including some of the remaining 1991 year class, are in captivity and 30,000 eggs were taken at the end of four years. Numerous broodstock and genetic questions continue to be investigated as the basic research underpinning the role of captive breeding in the maintenance of endangered salmon races. A workshop will be held at the Bodega Marine Laboratory in March 1996 addressing the this question in great detail. Workshop attendees will include all the existing salmon captive breeding programs and researchers and agency personnel from Oregon to Alaska planning new ones. Canadian representatives will also be in attendance. This is an example of the leadership provided by this project in coordinating national scientific focus on salmonid restoration. A goal of the workshop is to publish, in an appropriate fisheries journal, a benchmark paper that is derived from a consensus statement formulated by workshop participants that assesses the status of salmonid captive broodstock technology, progress to date, major research questions and its potential as a restoration tool.

Spring Run Chinook Salmon Work group
1994-95 Progress Report

CA Dept. of Fish and Game Contract # FG405 IF

1. The work group met 11 times in 1994-95. A total of 180 individuals have participated at the meetings. Attendance has varied from 25 to 76 people The mailing list has grown to 250 receiving monthly meeting notices, agendas and meeting notes.

2. During this period, the work group has gone through an evolutionary process. Starting the period as a planning/action forum, it progressed to being a funding agency for restoration projects, and finished as a education/discussion coordination forum.

3. The Work group: developed and worked on a 1995 action plan. This plan went through several redrafts, being modified by the group at successive meetings of the group early in the year. The plan i organized by basins, consisted of the 30 action items detailed in the plan, 14 were substantially accomplished by entities participating in the work group process. The remaining tasks in the action plan, which were not completed during the 1994-95 period will be included in the present 1995-96 contract period.

4. During 1994 the work group focused additional efforts on Butte Creek. The work group supported the effort to eliminate, consolidate re configure, or screen water diversions on Butte Creek. During the period, reports on planning progress on Butte Creek were received by the work group. Discussion and field trips to water diversion sites, led to action by work group members which helped secure funding for a new fish ladder at Parrot-Phelan Dam which is presently under construction. Additionally, workgroup members helped to facilitate funding for the Western Canal Siphon project.

5. During the period, The Nature Conservancy (TNC) became an active participant in the work group process. TNC staff are now attending work group meetings.

6. Department of Fish and Game Wardens were assisted and supported in their effort to organize a volunteer streamwalker group to supplement the efforts of the wardens on Mill. Deer and Butte Creeks. In the summer of 1995, this became an active project.

7. During the period, the workgroup focused effort on the restoration of Spring Run Chinook Salmon habitat in Battle Creek. A series of old hydropower plants on battle Creek had dewatered and blocked critical summer holding reaches of the creek. The work group sought the involvement of Pacific Gas and Electric, the project owner-operators in restoring spring runs in Battle Creek. Work group members and staff worked to support CDFG efforts to involve PG&E. Early in 1995, CDFG and PG&E reached agreement on a restoration plan which involved water rights leasing. (in midsummer 1995, work group members were instrumental in securing Category III funding for this project.

8. The work group continued to support and encourage restoration efforts in the Mill and Deer Creek Basins, and the activities of the two watershed conservancies. The work group planned to seek further involvement with Tehama County Schools. Work group member Anne Bianci has started an innovative watershed involvement program in the Tehama County schools.

9. The work group closely followed and strongly supported the organization of the Deer and Mill Creek Conservancies. The conservancies developed and successfully sponsored a legislative alternative to Wild and Scenic River designation. ;AB 1413, which was signed into law by Governor Wilson in July 1995. The work group provided a forum to facilitate consent for this action by environmental groups and support from fishing groups which had been in support of wild and scenic designation

10. The workgroup actively supported the proposal to secure Delta 4 Pumps mitigation funding of 1.6 million dollars for the Deer Creek water exchange project. This project, when it is on-line, will insure that there are adequate instream flows for spring-run migration in dry years.

11. The work group supported and encouraged actions to improve spring run populations on Big Chico Creek. One such action was relocation of The M&T Ranch pumping plant which is unscreened and which causes a reverse flow problem near the confluence of the creek with the Sacramento river. Relocation of the M&T pumps was identified as a top priority action by CDFG and the work group. Work group members were instrumental in securing Category III funding for this project.

12. The work group intensified its efforts to get more water diverters involved in its process with the result that attendance of irrigation district representatives has increased.

13. While the work group has chosen not to directly involve itself in the wide range of planning and operational issues relating to the impacts on spring-run chinook of migration through the Bay-Delta system, the group has stayed informed on the issue. Regular reports on the progress of the Bay-Delta process were provided to the work group. Unfortunately, the needs of spring-run outmigrants did not receive the same level of consideration in the December 15 Bay Delta Agreement that the winter run did. This was reported to have happened because spring-run were not listed as were winter-run.

14. The work group including several workgroup members supported and participated in the development of a study to review fishery impacts of fall flooding of rice fields for rice straw decomposition. The study, sponsored by The Bay Institute resulted in an interim report completed in the fall of 1994. Two work group members participated in its preparation. The Bay Institute is continuing its work, and the work group will be briefed on progress.

15. The work group monitored and received reports on The National Marine Fisheries Service Federal Endangered Species Act listing process. Regular reports were provided to the work group. In addition, work group members continued the on going dialogue with groups that are supporting a formal ESA listing.

16.A major portion of the work group's efforts in 1994-95 was on the selection of restoration projects for funding from a $300,000. Congressional appropriation to the Bureau of Reclamation (BOR) for projects deemed by the workgroup to benefit spring-run chinook salmon. The work group was asked to assist the BOR and the National Fish and Wild life Foundation (NFWF)in the selection of projects and the allocation of funds. The project selection process was time consuming and difficult for the work group.

Sixteen project proposals were reviewed and prioritized. Eight projects were subsequently recommended for full funding with a ninth conditionally identified for partial funding as follows:

Fully Funded

(1) A watershed inventory of potential road related sediment sources in the Mill and Deer Creek basins by Meadowbrook Associates

(2) A water temperature study in Butte Creek by the Calif. Dept. of Water Resources.

(3) Administration and continued facilitation of the Spring -Run Work group by the University of California Sea Grant Program.

(4) An evaluation of the habitat potential of the Upper Butte Creek Watershed by the nature Conservancy.

(5) An Instream flow study on Mill Creek by a subcontractor to Nor- Cal Guides.

(6) Control of bamboo at several sites on Deer Creek. by the Deer Creek Conservancy

(7) Installation of livestock exclusion fencing by the Deer Creek Conservancy.

(8) Provide active involvement in the Bay-Delta long-term planning process by Natural Heritage Institute.

Conditionally/Partially Funded

(1) Develop an enhanced GIS database for Mill Creek by Nor-Cal Guides.

After having gone through the often contentious and time consuming project selection process, the work group decided by consensus that it did not want to continue as a funding agency, but rather it would make recommendations for project funding from other sources such as the Central Valley Project Improvement Act.

17. With the completion of the funding process and the successful evolution of watershed conservancies on Deer, Mill, and Butte Creeks, the work group is evolving in the direction of being an education, information sharing, and coordination forum. A 1996 action plan is in preparation. New opportunities for the restoration of spring -run chinook salmon on Battle and Clear creeks have opened up. Meeting attendance is again increasing. The public perception appears to be that the work group has successfully overcome tensions caused by the funding process and is back on course to further the recovery of spring-run Chinook salmon.

PREPARED STATEMENT OF JAMES BALSDON, VICE PRESIDENT, BOARD OF TRUSTEES, RECLAMATION DISTRICT NO. 108

Mr. Chairman and members of the subcommittee, my name is Jim Balsdon. I am a fourth generation farmer from northern California and Vice-President of the Board of Trustees of Reclamation District No. 108.

The District is comprised of approximately 48,000 acres of irrigated farmland located along the west side of the Sacramento River within Yolo and Colusa Counties, about 45 miles northwest of Sacramento. Water for irrigation of District lands is obtained by pumping from the Sacramento River.

The District was formed in September 1870 and on March 30th of this year we will hold a 125th Anniversary Celebration. All of you are most welcome to participate and to share in recalling the struggles and history of the early pioneering landowners who built the levees, drains, canals, and pumping plants to irrigate the rich farmland and to stem the floods.

This pioneering legacy is evident today in the District's efforts to develop a cost-effective barrier to protect the endangered chinook salmon and other fish species from being drawn into our pumping facilities. Over the past three years the District has been testing the effectiveness of an electric fish barrier as an alternative to the traditional positive screen fish barrier. Results of these tests, and in particular the testing performed this past year, show that the electric fish guidance technology, in combination with a flow distribution system, is capable of successfully guiding fish away from the intake structure at Wilkins Slough Pumping Plant. Further testing this year will determine how effective this alternative barrier can be in protecting fish.

We are convinced that the electric barrier/flow distribution facility will be a more cost effective solution to protecting fish than the high-cost positive screen barrier. At Wilkins Slough, the capital cost of constructing an electric barrier is approximately one-third the estimated $7 million cost of constructing a positive screen barrier.

Through 1996, approximately $3 million will have been spent in testing this alternative fish barrier, with the District's 130 landowners and water users paying about one-half of the cost. In order to complete the electric barrier development phase in 1997, the District respectfully requests a $1.1

million appropriation for fiscal year 1997 from the Bureau of Reclamation. This level of funding will provide $600,000 toward program costs for 1997 and $500,000 to reimburse the District for approximately one-third of our prior expenditures in fish barrier development. Results of these investigations will benefit not only the District but will also be useful to other diverters and to State and federal resource agencies which are currently being faced with decisions regarding fish protection requirements at unscreened diversions.

We greatly appreciate the support of the Committee, and the continuing assistance of the Bureau of Reclamation, the National Marine Fisheries Service, and other federal and State resource agencies in our efforts to develop this innovative, cost effective fish protection technology. It is our expectation that the testing this year will demonstrate that the electric fish barrier/flow distribution facility is a viable, lower-cost alternative to the positive screen barrier, and that further refinements of the testing during 1997 will confirm its success as well as its usefulness at many other sites along the Sacramento River and elsewhere.

Thank you for your continuing support.

PREPARED STATEMENT OF WENDY HO IWATA, PROJECT MANAGER, DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF SAN FRANCISCO, CA

Honorable Chairman Pete Domenici, distinguished members of the United States Senate Committee on Appropriations, my name is Wendy Iwata and I am pleased to submit this statement to you today on behalf of the almost 20 agencies involved in the San Francisco Area Water Reclamation Project. The **San Francisco Area Water Reclamation Project** is more commonly known as the **Central California Regional Water Recycling Project** (CCRWRP) because the potential service areas have expanded to northern and central California, with impacts for water rights throughout the state. Because of the major environmental benefits and the reliable water resource role that a regional water recycling project can play in California, the CCRWRP asks for $1.5 million for the Bureau of Reclamation's participation in this project for federal fiscal year 1997.

The purpose of the **San Francisco Area Water Reclamation Project** is to conduct a feasibility study identifying California regions that could use high-quality recycled water for such purposes as agricultural irrigation or salinity control. Of the estimated 650,000 acre feet totally available in the San Francisco Bay Area for water recycling, up to 200,000 or about one-third can be used locally. The amount exceeding local usage -- up to 450,000 acre feet — could be exported to outside regions for beneficial reuse. *This excess water is currently disposed into the Bay, rivers and delta—a discharge option more difficult with increasingly stringent discharge limitations and higher treatment standards facing the entire state.* More importantly, this high-quality water is a valuable resource that can help *offset environmental diversions, meet agriculture's demands, provide drought protection, secure additional emergency reserves for firefighting and other disasters*, and more.

We are all too aware of the State's Department of Water Resources' projected water shortfall in California by year 2020 of up to 8 million acre feet. We know that urban water demands will almost triple by the 2020, and that freshwater diversions to the Delta can be as high as 1.1 million acre feet of water. As municipalities who must plan for the water needs of our people and environments, we join with the State and Federal governments in our quest to develop scientifically-valid needs assessments, well-documented regional supply plans, and finally, environmentally sound, site-specific implementation strategies. On behalf of the over 15 Bay Area water and wastewater agencies participating in the Central California study; the multitude of state and federal jurisdictions involved in our stakeholder, regulatory and technical committees; and the agricultural, business, manufacturing and environmental communities engaged in this dialogue, we strongly support this partnership and feasibility study known as the **Central California Regional Water Recycling Project**. With the recent release of the first set of recommendations from the Step I Feasibility Analysis, we urge your support for $1.5 million for Step 2 so that the social, economic and environmental issues can be addressed alongside with the technical screening that produced our first set of viable recycling alternatives.

Briefly, the major accomplishments of Step I include the following:

1. Export Alternatives: After evaluating over 30 options for use of recycled water outside the Bay Area, the major alternatives now include: a) direct augmentation of flows in the *Sacramento-San Joaquin Delta* for salinity repulsion; b) agricultural reuse and refuge use via the *Delta Mendota Canal*; c) agricultural reuse and salinity control in the *Monterey/Salinas* Area;
2. Local use: we have identified measures that will help maximize local use of recycled water, including irrigated green belts in the Bay Area;
3. Water Quality: we have projected the expected water quality of Bay Area recycled water and identified measures to mitigate those components that exceed standards;
4. Wastewater Benefits: we have projected the reductions in mass loadings to the Bay Area, and calculated a wastewater benefit cost;
5. Water Supply Benefits: we have identified significant water supply benefits related to local and export use of recycled water.

The Step 2 phase of the feasibility study will further define and evaluate the social, economic and environmental issues that might "trigger" export of recycled water to the Delta Islands, DMC or Monterey/Salinas area. The products of Step 2 will be a definition for the best apparent project(s) and a Regional Recycling Water Master Plan linking local recycling with the export options under study.

The **CCRWRP** is **integral** to other statewide, Bureau of Reclamation-funded studies that seek **to link potential sources of water supply to areas of greatest need.** The goals of **CCRWRP** are completely consistent and environmentally compatible with other on-going state studies -- *develop a statewide water yield picture... find linkages to those geographic areas of need that are economical, socially and environmentally acceptable...conduct site-specific environmental reviews that can lead to implementation*. I refer specifically to the Least-Cost CVP Yield Increase Plan (a methodology to link water needs to water supply, currently before the Department of Interior for approval) and Bulletin 160-98 Technical Assistance to States (Bureau of Reclamation's participation with DWR), both of which see water reuse as an option to reduce water demand and increase yield. The California Water Augmentation Program, a new start for FY 1997, will build on these efforts and apply this methodology statewide to balance water supply and water demand. In the same way, the on-going CALFED process focuses on the freshwater needs of the Delta, which is a main option for study under CCRWRP for export of recycled Bay Area water.

Clearly, this is a crucial time for these statewide studies to converge. Locally, we proceed in completing our environmental reviews of local reclamation projects while participating in a 50-50 cost-sharing with the Bureau of Reclamation for the regional water recycling project. It is clear to us as participants in the **San Francisco Area Water Reclamation Project** that this feasibility study is important now, in light of increasingly stringent discharge and treatment standards, as well as important for California's future in conserving fresh water supplies and meeting water demands. **The local partners are committed to meeting the local financial and staffing demands of this project—we ask for your support in securing $1.5 million for the Bureau of Reclamation's participation in 1997 for the San Francisco Area Water Reclamation Project.**

PREPARED STATEMENT OF MICHAEL D. ARMSTRONG, GENERAL MANAGER, MONTEREY COUNTY WATER RESOURCES AGENCY

Mr. Chairman, thank you for the opportunity to provide testimony for inclusion in the hearing record on the Fiscal Year 1997 Energy and Water Development Appropriations bill. The people of the Salinas Valley in California's 17th Congressional District appreciate your willingness to accept our statements in support of the Castroville Seawater Intrusion Project. I would further like to express our deep appreciation for your efforts during the development of the FY 1996 Energy and Water Development Appropriations bill. I am pleased to report that the notice to proceed with the project was executed with our construction contractors in August 1995 and that project construction is on schedule to be completed in June 1997.

While the President's budget has not yet been released, we and the other Small Reclamation Loan Program participants have been working closely with the Bureau of Reclamation on multi-year strategies designed to meet the needs of all the projects in the Program while recognizing the fiscal constraints facing all levels of government. As with last year, it is our intention to present the Appropriations Committee with a consensus budget request that is supported by the Administration and all the Small Reclamation Loan Program participants. To that end, during the past several months, we have been in close consultation with the Bureau and the other Program participants and have developed funding plans that we believe will lead the Bureau of Reclamation (USBR) to request sufficient funding for the Castroville Seawater Intrusion Project as part of the President's FY 97 Budget for the P.L. 84-984 Small Reclamation Loan Program. This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990, should yield a total loan amount for FY 97 that will allow the project to proceed on schedule.

The Monterey County Water Resources Agency is a local government entity formed under the Monterey County Water Resources Agency Act. It is an agency with limited jurisdiction involving matters related primarily to flood control and water resources conservation, management, and development. The Salinas Valley is a productive agricultural area that depends primarily on groundwater as a water supply. The combination of the Valley's rich soils, mild climate, and high quality groundwater makes this valley unique among California's most fertile agricultural land and has earned the Valley the distinction as the "Nation's Salad Bowl." As agricultural activity and urban development have increased in the past forty years, groundwater levels have dropped allowing seawater to intrude the groundwater aquifers. Seawater intrusion is extensive adjacent to the coast near the town of Castroville. The Castroville Seawater Intrusion Project will provide 19,500 acre-feet of recycled water for agricultural irrigation to over 12,000 acres and help solve the seawater intrusion problem by greatly reducing pumping in the project area. The California Water Resources Control Board specifically indicated its strong support for the Castroville Seawater Intrusion Project in a 1994 letter to the USBR. The Castroville Seawater Intrusion Project is an essential component in the MCWRA's plan to deal with basin-wide groundwater overdraft and seawater intrusion.

The amount requested in FY 1997, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. As I stated, the funding request that we anticipate is the result of a lengthy and complex financial agreement worked out with the other Loan Program participants and the Bureau. The agreement recognizes the tight federal budgetary constraints and represents that absolute minimal annual amount necessary to proceed with project. The MCWRA has been extremely accommodating of the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal government's budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project.

In August 1992, the original loan request was submitted to the Bureau. Subsequent approval was received from the Secretary of Interior in May 1994. Through extensive discussion and negotiations between MCWRA and the USBR, a project financing plan was created. The USBR made it quite clear that the original provisions in the loan application of full disbursement during the three years of construction could not be met due to federal budget shortfalls. As defined in the new repayment contract, the USBR will disburse funds to the MCWRA over an eight year period. This means that the MCWRA will receive these funds for five years after the project is operational. This also means that the MCWRA has had to acquire "bridge financing" to meet the needs of the Castroville Seawater Intrusion Project construction costs. Even though the additional private debt service has increased the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding, and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. The Monterey County Water Resources Agency has spent approximately $10.3 million of its own funds getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Small Reclamation Program and urge the inclusion of funds for the Castroville Seawater Intrusion Project. Without your continued support, we will not be able to realize the benefit of the work completed over the past several years and the groundwater basin will continue to deteriorate, creating a significant threat to the economy as well as to the health and welfare of our citizens.

Again, thank you for your support and continued assistance.

PREPARED STATEMENT OF KEITH ISRAEL, GENERAL MANAGER, MONTEREY REGIONAL WATER POLLUTION CONTROL AGENCY

Mr. Chairman, thank you for the opportunity today to provide this testimony for inclusion in the hearing record on the Fiscal Year 1997 Energy and Water Development Appropriations bill. Monterey Regional Water Pollution Control Agency, a joint-powers entity formed under the laws of the State of California, was created in the early 1970's to implement a plan that called for consolidation of the Monterey Peninsula and northern Salinas Valley wastewater flows through a regional treatment plant and an outfall to central Monterey Bay. The plan also required studies to determine the technical feasibility of using recycled water for irrigation of food crops (artichokes, celery, broccoli, lettuce, and cauliflower) in the Castroville area. These studies were initiated in 1976 and included a five year full scale demonstration of using recycled wastewater for food crop irrigation. California and Monterey County health departments concluded in 1988 that the water was safe for food crops that would be consumed without cooking. Subsequently, the Salinas Valley Seawater Intrusion Committee voted to include recycled water in their plan to slow seawater intrusion in the Castroville area.

The project will provide 19,500 acre feet of recycled water to land south and west of Castroville where abandonment of wells threatens agricultural production and the loss of a portion of rural America. It will also reduce discharge of secondary treated wastewater to the recently created Monterey Bay National Marine Sanctuary. The California Water Resources Control Board specifically indicated its strong support for the Salinas Valley Reclamation Project in a 1994 letter to the USBR.

Before continuing, let me express my sincere appreciation for your continued support for the Small Reclamation Loan Program and specifically for the Salinas Valley Reclamation Project. Last year, this subcommittee through your leadership provided $1.1 million for our project. I am pleased to report that the funds appropriated thus far are being well spent on our project which began construction in August 1995. We are on schedule and are looking forward to project completion during the summer 1997.

While the President has not yet submitted his 1997 budget, we have been in close consultation with Bureau of Reclamation and the other Small Reclamation Loan Program participants during the past several months in an attempt to provide the Committee with a consensus budget request that has the support of the Administration and the Loan Program participants. Based on these discussions, we are hopeful that the Administration will request, with our support and endorsement, sufficient funding for the Salinas Valley Reclamation Project as part of the Bureau of Reclamation's P.L. 84-984 Small Reclamation Loan Program for continuation of loan obligations. This appropriation amount, when combined with other federal funding which is available from the U.S. Treasury pursuant to the Federal Credit Reform Act of 1990, will yield a total loan amount that we believe will meet the federal government's commitment for FY 1997. The amount requested, when combined with the additional Treasury portion, is intended to fulfill the Bureau's second year loan commitment for assistance to construct the project. As I indicated, the funding request is the result of a lengthy and complex financial agreement worked out with the other Loan Program participants and the Bureau. The agreement represents that absolute minimal annual amount necessary to proceed with the project. The MRWPCA worked under the premise of accommodating the Bureau's budgetary constraints and has agreed to expend considerable local funds to bridge the federal governments' budgetary shortfall. Any additional cuts in federal funding will jeopardize the complex financing plan for the project.

Even though the additional private debt service will increase the project costs, the critical problem of seawater intrusion demands that the project proceed. The USBR loan is a crucial link in project funding and it is imperative that annual appropriations, even at the planned reduced rate over eight years, continue. The federal funds requested under the P.L. 84-984 program will be repaid by landowners in the Salinas Valley with assessments that are currently in place. Local funds totaling $5.1 million have already been spent getting to this point.

Mr. Chairman, we urge you and the members of the subcommittee to give your continued support to the Small Reclamation Loan Program and specifically to the Salinas Valley Reclamation Project.

Your support and continued assistance will be much appreciated.

PREPARED STATEMENT OF JOHN B. BRUDIN, GENERAL MANAGER, EASTERN MUNICIPAL WATER DISTRICT

Mr. Chairman, my name is John B. Brudin, General Manager of Eastern Municipal Water District. I appreciate the opportunity to submit Eastern's request for continued funding of a construction project under the provisions of the Small Reclamation Projects Act of 1956 as amended, P.L. 84-984 Loan Program, with the United States Department of the Interior, Bureau of Reclamation.

RECLAIMED WATER SYSTEM PROJECT

Eastern Municipal Water District is the local sponsor of the Bureau of Reclamation Project. Approval by the Secretary of the Interior for this project was obtained on May 23, 1991. This project provides for a new concept in water management which is resulting in significant water conservation. The Eastern Municipal Water District, like much of the arid west, is faced with a water shortage condition which is continuing to deplete the District's valuable groundwater supplies.

The project is putting into place the construction of a major transmission system and appurtenant works necessary for a Class 2 water supply system, which will 1) reduce the demands on the District groundwater supply; 2) provide for extended agricultural production; 3) provide environmental enhancement creating multipurpose wetlands for the migratory birds of the Pacific Flyway; and 4) create the potential of 990 jobs to bolster the regional economy.

In Fiscal Year 1992, 1993, 1994, 1995, and 1996, the continued support from your committee has provided over $27,000,000 in appropriations which has allowed for the completion of nearly 90% of this vital system. It is the District's understanding that the President's Fiscal Year 1997 Budget includes funding for this project in the amount of $3,887,700 as part of the Bureau of Reclamation Programs. During the California Water Commission hearings on March 1, 1996, the Commission supported a recommendation in this amount. We respectfully request your continued support of our project and this appropriation in the amount of $3,887,700 in the 1997 Fiscal Year Budget. A summary is enclosed.

On behalf of the Board of Directors of Eastern Municipal Water District, we at the District, sincerely appreciate your continued assistance in scheduling the opportunity to appear before your Committee to testify on behalf of the District Project and as part of the California Water Commission presentation.

SMALL RECLAMATION PROJECTS
LOAN PROGRAM

NAME OF PROJECT

Reclaimed Water Facilities, Eastern Municipal Water District, San Jacinto, California

AUTHORIZATION

P.L. 84-984 - Small Reclamation Project Act

LOCATION, DESCRIPTION, AND REPRESENTATION

The project is located in Riverside County, California, north of the San Diego County line, east of the City of Riverside and west of the San Jacinto Mountains. Project features include construction of approximately 45 miles of major pipelines, two pumping stations, and a 3 million gallon per day tertiary treatment expansion to reclaim and convey wastewater effluent to wetland areas, recreational lakes, agricultural lands and M&I users. Representation for the State of California Congressional Districts include: CA-43 - Rep. Ken Calvert (R); CA-44 -Rep Sonny Bono (R); CA-48 - Rep Ron Packard (R); and Senators Dianne Feinstein (D); Barbara Boxer (D).

JUSTIFICATION

The project will provide reclaimed water for expansion of three separate wetlands, covering nearly 600 acres as well as provide reclaimed water to over 21,500 acres of irrigated land, thus preserving treated potable water that would have been used without the proposed system. Recycling reclaimed water will also provide other important joint and conjunctive use benefits such as establishment of recreational parks and greenbelts, enhancement of wetlands, wildlife habitat, and the recharge of surplus reclaimed water into underground aquifers to improve water quality and for future drought (banking) management. This secondary water supply will, through exchange and replacement agreements, free-up limited primary water supplies in order to meet the fast-growing domestic and M&I demands in Southern California.

PROJECT PURPOSE

The water reclamation system will provide an alternate water supply system, for presently, water-short lands in the District. The enlargement of water reclamation facilities would decrease the use within the District of our limited imported domestic water supplies.

A major benefit of the project is to provide groundwater basin recharge/replenishment benefit by conveying untreated potable water to a 100 acre recharge basin within an area of the District known as the Little Valley near Bautista Canyon, east of Hemet, California. The recharge of this basin will enhance the declining groundwater supplies of the neighboring communities of Hemet and San Jacinto, California. Additionally, this recharge area will provide environmental enhancement, in the form of wetlands habitat, particularly for the benefit of waterfowl traveling the Pacific Flyway.

The system will also provide the enhancement and enlargement of two other wetland areas. One wetland expansion/creation, approximately 160 acres, is proposed in the general vicinity of the California Fish and Game, San Jacinto Wildlife Refuge. The other wetland expansion/creation is located along the Temescal Creek from Lake Elsinore to the Santa Ana River, encompassing approximately 300 acres. These wetlands areas will also have the potential to function as groundwater recharge areas, so that the water conveyed to these areas will percolate into and replenish the underlying groundwater basins.

PROJECT FINANCING

The District is seeking continued funding from its approved U.S. Bureau of Reclamation, Small Projects Act cost share loan of $31,100,000.

FINANCIAL/ECONOMIC FACTORS:

Repayment:	15 years	Loan Factor:	28.2%	B/C Ratio:	2:1

FUNDING SCHEDULE:

BUDGET REQUESTS				CAPABILITY		
YEAR	FEDERAL	NON-FEDERAL	TOTAL	FEDERAL	NON-FEDERAL	TOTAL
*FY92	$3,054,465	$500,000	$3,554,465	-0-	-0-	$3,554,45
*FY93	$5,358,380	$2,000,000	$7,358,380	-0-	-0-	$7,358,380
*FY94	$8,682,100	$2,800,000	$11,482,100	$2,000,000	$2,000,000	$15,482,100
FY95	$4,160,000	$2,000,000	$6,160,000	-0-	-0-	$6,160,000
FY96	$6,000,000	$3,000,000	$9,000,000	-0-	-0-	$9,000,000
FY97	$3,887,700	$3,321,400	$7,209,100	<$2,052,155>	<$1,321,400>	$3,373,555

* Actual Expenditure

JOBS CREATED

Up to 990 jobs will be created by design, manufacture, and construction of this project.

TOTAL PROJECT COST $ 46,046,400

PROJECT STATUS

All facilities are either in design or construction with project completion anticipated in June of 1997.

PREPARED STATEMENT OF NEIL M. CLINE, GENERAL MANAGER, SANTA ANA WATERSHED PROJECT AUTHORITY

Mr. Chairman, Members of the Committee, on behalf of the Santa Ana Watershed Project Authority (SAWPA), thank you for the opportunity to present this request for continuing Federal assistance in the construction of the Chino Basin Desalination System. SAWPA is a joint powers agency composed of Chino Basin Municipal Water District, Eastern Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District. These five agencies, serving over 4.0 million people, are responsible for managing the water resources of the Santa Ana River in San Bernardino, Riverside, and Orange Counties in Southern California.

The Chino Basin Desalination Program is the centerpiece of a regional plan to protect water quality objectives in the region and to extend the use of local water resources to satisfy existing and future water supply requirements. The Chino Groundwater Basin, an area of about 220 square miles, is located upstream of densely populated Orange County. Water quality in the region is degrading due to historic and ongoing agricultural activities. Irrigation drainage over the past 100 years has deposited high concentrations of salt and nitrates in the soil and groundwater. At the present time there are over 300,000 dairy cattle concentrated on 15,000 acres of land in the basin. It is estimated that the dairy operations, despite strong efforts to manage quality issues, contribute as much as 27,000 tons of salt annually to the groundwater supplies in the area. Municipal water wells in the communities of Norco, Jurupa, City of Chino, and the City of Chino Hills have been abandoned due to salt and nitrate contamination. It has been determined that if left unchecked the salt and nitrates will further degrade local groundwater, jeopardizing over 50% of the basin's supply, and that downstream water resources in Orange County are equally threatened.

The Chino Desalination System is being constructed and will be operated to protect the areas groundwater resources from further deterioration, to protect the surface flows of the Santa

Ana River from degradation, and to facilitate expanded conjunctive use of imported and local water supply. The project will extract and desalt about 10,000 acre-feet per year of salt laden, brackish groundwater from the Chino Basin. Demineralization will be accomplished by installing a desalting plant designed to produce 8.0 million gallons per day of potable water for use in nearby cities and on local farms. The desalters will be supplied poor quality water from extraction wells, carefully located to intercept the sub-surface migration of contaminated water. Approximately 14,000 tons of salts will be removed from the basin annually by this operation. The process of salt removal will produce a heavy saline brine reject which will be transported from the basin in a non-reclaimable waste line and receive additional treatment prior to ocean disposal.

The estimated cost of constructing the desalting plant and appurtenant features is $46,500,000. SAWPA has been successful in acquiring a low interest loan from the State of California under its Agricultural Drainage Water Management Loan Program in the amount of $13,300,000. The Bureau has approved a $33,200,000 loan for the Authority through its PL 84-984 Small Reclamations Project Act Program. We have received one installment of $900,000 in FY 1995 in Bureau funding and anticipate a second allocation of $1.0 million in FY 1996. We respectfully request that the Committee continue your support of the Bureau's loan program so that we will be able to successfully complete this desalting project which is so vital to our region. The loans from the State and Federal government will be repaid from proceeds derived by marketing the desalted water to local communities, who to meet their increasing demands, will otherwise be forced to depend upon imported supply from Northern California, conveyed by the State's Department of Water Resources from the Sacramento-San Joaquin Delta to the Metropolitan Water District of Southern California. The project has the support of local water jurisdictions, the local and State Water Quality Control agencies, local agricultural interests and the Metropolitan Water District. To date, SAWPA has invested $7.5 million in design and rights-of-way acquisition. Construction is expected to begin this fall and the plant is planned to be on-line in November 1997.

The benefits of this important program are:

1. Protection of local ground and surface water supplies.
2. Protecting the environment from continued salinity degradation.
3. Assuring the long-range viability of agriculture in the region.
4. Providing additional water in an area of water scarcity.
5. Providing as many as 1,000 design and construction jobs in an area where unemployment remains among the highest in the United States.
6. Reducing the demand for water from the State's Delta area in Northern California.

Your continuing support of this program will be greatly appreciated by local and regional water resource agencies and the people they serve.

Thank you.

PREPARED STATEMENT OF MARK THOMAN, TREASURER, BOARD OF DIRECTORS, ELSINORE VALLEY MUNICIPAL WATER DISTRICT

Mr. Chairman, as Treasurer of the Board of Directors of Elsinore Valley Municipal Water District, Lake Elsinore, California, I appreciate the opportunity to address the Appropriations Committees regarding the Temescal Valley Project. The Temescal Valley Project is a public works water project which is being sponsored by Elsinore Valley Municipal Water District to develop and manage local water resources and to improve the economy of western Riverside County and southern California.

The importance of this project as we plan for the next century cannot be overstated. It will ensure the ability of the District to meet the growing water requirements of an expanding population in southern California while preserving the existing water resources on which agriculture has relied for over a century. The project has been conceived in a manner which will keep impacts to the environment to an absolute minimum. Approximately 6,000 acres of citrus are under production in this area. Much of the crop is exported to trading partners in the Pacific Rim, which has a positive effect on the balance of trade with these countries.

The Elsinore Valley Municipal Water District's Temescal Valley Project was funded $600,000 in the 1995 Federal budget and has been allocated $1.4 million, including the Treasury Department's portion for 1996. Design for the project is near completion and it is anticipated that construction will start in the latter part of the third quarter of 1996.

In accordance with the funding and allocation projects agreed to by the NWRA Committee, it is requested that support be given for $2 million, including both the Bureau of Reclamation and Treasury shares for the fiscal year 1997 budget. This will allow Elsinore Valley Municipal Water District to continue the Temescal Valley construction through budget year 1997.

Thank you,

PREPARED STATEMENT OF BOB BEIN, ORANGE COUNTY BUSINESS COUNCIL, ORANGE COUNTY WATER DISTRICT

My name is Bob Bein. I am representative of the Orange County Business Council, serving as Chairman of the Water Resources Committee, and CEO of Robert Bein, William Frost & Associates

I am here to testify for the Orange County Water District's new innovative project called the Orange County Regional Water Reclamation Project (OCR). As you are aware, California's water supply is becoming increasingly unreliable, and in an attempt to develop a new, cost-effective, reliable local water supply the water district is evaluating a large-scale reclamation project that will produce reclaimed water primarily for groundwater recharge.

This project will be staged to produce 100,000 acre-feet per year of new water supplies, which will increase water reliability for the entire region. It will incorporate the newest and most advanced water treatment technologies to produce water of improved quality at a competitive rate

I respectfully request the Energy and Water Development Subcommittee to support this project with $600,000 funding towards phase one of this $170 million dollar project.

Abstract

California's water supply is becoming increasingly unreliable, and investments to make water more reliable must be seriously investigated. In this arid region of Southern California, reclaimed water is the only "new" source on the horizon.

The Orange County Water District, together with the County Sanitation Districts of Orange County, are exploring the feasibility of building a water reclamation project that would produce up to 123 million m³/year (100,000 afy) of highly treated wastewater, using the latest and most advanced technological processes available.

Introduction

In response to projections of future droughts and water shortages, local water agencies, including the Orange County Water District (OCWD) have been evaluating alternatives for increasing local water supplies. According to the Metropolitan Water District of Southern California (MWD), the imported water agency serving nearly 16 million citizens in Southern California, the region needs to develop approximately 1.4 billion m³ (1.1 million AF) of new water supplies by the year 2000 to sustain the region during prolonged drought conditions.

In an attempt to develop a new, cost-effective, reliable local water supply, OCWD and the County Sanitation Districts of Orange County (CSDOC) are jointly evaluating a large-scale reclamation project that will produce reclaimed water primarily for groundwater recharge.

Wastewater Reclamation

OCWD is a pioneer in the use of treated wastewater for augmenting local supplies. OCWD and CSDOC have been successfully working together on reclaimed water projects since 1975, beginning with Water Factory 21, and more recently with the Green Acres Project, initially completed in 1991.

Water Factory 21 is an important part of OCWD's approach to reducing dependency on imported water. The Water Factory treats secondary effluent using lime recalcination, multimedia filtration, carbon adsorption, disinfection, and reverse osmosis. The product water is blended with deep well water and injected into the groundwater basin to maintain a hydraulic barrier against seawater intrusion. The quality of the injected water has consistently met or exceeded regulatory agency requirements.

The Green Acres Project currently delivers 4.1 million m³/yr (3,300 afy) of reclaimed water to 28 end-user sites. The water is treated to meet Title 22 requirements for agricultural and landscape irrigation, and industrial uses. OCWD plans to extend the service reach of the project and increase production to 6.2 million m³/yr (5,000 afy).

Wastewater reclamation has proven to be economically and technically feasible, and has gained widespread support. While imported water prices have risen, advancements in treatment technologies have made wastewater reclamation more cost effective.

The OCR Project

OCWD and CSDOC are exploring the feasibility of building an innovative reclaimed water project that would treat secondary treated wastewater at a cost competitive with other alternative water sources. Orange County Regional Water Reclamation Project (OCR Project) water will be primarily dedicated to groundwater recharge.

Consistent with its commitment of improving and promoting new treatment technologies for purifying treated wastewater, OCWD will incorporate various emerging advanced technologies, such as microfiltration (MF), reverse osmosis (RO) and ultrafiltration (UF), to remove virus and bacteria, total dissolved solids and total organic carbon.

The proposed project would convey the highly treated water 21 km (13 miles) along the Santa Ana River via a pipeline 1.83 meters (6 ft) in diameter. The pipeline would distribute the water in OCWD's 6.5 km² (1600 acres) of existing groundwater recharge facilities in Anaheim. Alignment with the river would be less costly and would minimize environmental impacts.

In addition, the pipeline will travel through the center of industrial Orange County. OCR Project water could be plumbed to distribute water for landscape irrigation and for use by water-reliant industries along the corridor.

The OCR Project would be developed in three phases. As envisioned, the project would produce 61.7 million m³/yr (50,000 afy) in the year 2000 and would increase in increments to between 92 million m³/yr (75,000 afy) and 123 million m³/yr (100,000 afy) by the year 2020. The reclaimed water would provide a supply to OCWD's existing recharge basins during most months of the year, increasing water reliability in the region.

New Technologies

Microfiltration and Ultrafiltration offer the potential for improved pretreatment for the reverse osmosis process. A full-scale MF test unit in operation at OCWD filters 32-L/s (500 gpm) of secondary treated wastewater using a 90 cylindrical modular system. Currently, the OCR Project is considering a treatment train consisting of MF as a pretreatment process for RO (Figure 1).

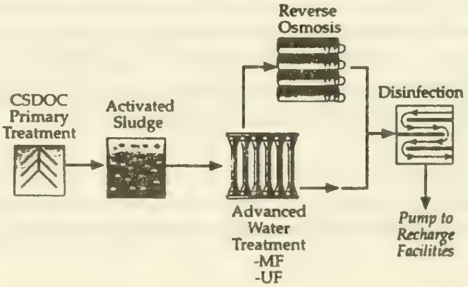


Figure 1

MF will remove bacteria and virus, while RO would remove carbons, salts, ions and even atomic radii. Sodium hyperchloride or ultraviolet filtration, new disinfection methods, would be employed as opposed to standard chlorine disinfection.

MF uses pressurized capsules containing 18,000 hollow-fiber polypropylene membranes, 0.6 millimeters in diameter on the outside. The MF cylinders are four-feet long and four inches in diameter.

The filter process works as pressure is applied to the water entering the cylinders, forcing it through the walls of the hollow fibers. Contaminants accumulate on the outside surface of the fibers, while the filtered water passes through the walls and collects inside the 0.2 millimeter diameter area.

The OCWD test unit removes contaminants at 30 minute intervals with a gaseous backwash, and the membranes are cleaned periodically with a 2 percent sodium hydroxide, containing various surfactants and chelating agents.

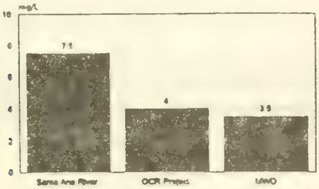
RO membranes of the thin film composite low pressure-high rejection type (TFC) will also be evaluated by OCWD for both treatment reliability and cost effectiveness. Manufacturers are currently developing new RO units that would require less operating pressure while maintaining their superior treatment capabilities.

Water Factory 21, which has a 18,900 m³ (5 mgd) RO system, has experienced improvements in RO membrane rejection rates and a reduction in feed pressure and costs since the project began in 1975 using the cellulose acetate (CA) membranes. However, The TFC membranes require even less pressure, 690-1,242 kPa (100 - 180 psi), compared to 1,553 kPa (225 psi), and outperform the CA membranes with a higher rejection percentage.

Water Quality

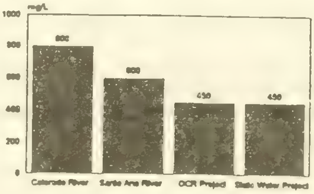
In addition to improved water reliability and efficiency, the OCR Project also offers water quality benefits. The quality of this reclaimed wastewater would meet all health standards required by the State Department of Health Services, and will be even better than the quality of Santa Ana River water currently received from up-stream dischargers for recharge.

The current recharge supplies for the Orange County groundwater basin are 84 percent upstream treated wastewater discharges and storm flows, and approximately 16 percent rising groundwater and MWD imported supplies. In terms of total dissolved solids, total organic carbon and turbidity, OCR Project water is expected to be of better or equal quality than the existing recharge supplies (Figures 2 and 3).



Comparison
Total Organic Carbon (TOC)

Figure 2



Comparison
Total Dissolved Solids (TDS)

Figure 3

As part of the planning process for the OCR Project, OCWD is currently coordinating with the regulatory and scientific communities on a three-year effort to conduct the Santa Ana River Water Quality and Health Effects Study. The Study contains several components, including hydrogeological investigations, chemical characterization, microbial characterization, toxicological studies, an epidemiological study, chemical transport and removal, health risk assessment, and the establishment of a health effects advisory panel.

This study, already underway, will help OCWD determine the safety of existing recharge operations, evaluate potential impacts of reclaimed water on the groundwater basin and generate the necessary information for regulatory approval.

Costs

Based on the preferred treatment train, capital costs for Phase I of the OCR Project are estimated at $151.0 to $176.5 million, in 1995 dollars. Phase II is estimated to be at $52.9 to $65.5 million for capital costs.

Because the OCR Project is being evaluated to include emerging technologies and maximize OCWD's current recharge capabilities, without requiring any additional land purchases, the project is expected to produce water at a competitive rate.

The Phase I unit cost would vary depending upon the level of treatment necessary to comply with regulatory requirements, Federal grant funding and the MWD Local Projects incentive contribution. The unit cost is estimated to range between $0.35 m^3 ($448 AF) and $0.54 m^3 ($660 AF). Compared to projected imported water costs ($574 AF), ocean desalination ($1300 - $2000 AF) and nonpotable recycled water ($590 - $890 AF), the unit costs of producing the OCR Project are competitive.

Conclusion

Implementation of the OCR Project will allow the northern and central Orange County area to increase its use of local water supplies, alleviate the effects of dry years, and reduce its reliance on imported water sources. The coordinated effort of all agencies committed to this project, along with the advancements in treatment technologies, will bring reclaimed water for potable use one step closer to reality.

Reference

1) Orange County Water District and County Sanitation Districts of Orange County. Orange County Regional Water Reclamation Project Feasibility Study Report; 1995.

PREPARED STATEMENT OF JERRY C. HARMON, CITY COUNCIL MEMBER, FORMER MAYOR, ESCONDIDO, CA

Good morning Mr. Chairman and members of the subcommittee. I am Jerry Harmon, City Council Member and former Mayor of Escondido, California. I appreciate the opportunity to appear before you again this year in support of funding for the Escondido Water Reclamation Program. I would like to thank the subcommittee, in particular you, Mr. Chairman, former Chairman Bevill, and Mr. Fazio for the support you have shown the program in each of the last three appropriations bills. I also would offer a special thank you to Mr. Myers and Mr. Bevill for your 30 years of dedicated public service in the U.S. House of Representatives and 20 years on the Subcommittee on Energy and Water Development. You each deserve recognition for your tireless efforts in improving the lives of millions of Americans.

The Escondido Water Reclamation Program is a key component of San Diego County's comprehensive regional water management plan. The Escondido Water Reclamation Program will provide as much as 4.2 billion gallons per year of reclaimed water to residents of the City of Escondido and surrounding communities in San Diego County. Those expected to participate in the program include the cities of Escondido, San Diego, and Poway; and the Olivenhain Municipal Water District and the Rincon del Diablo Municipal Water District (MWD).

Escondido already has started construction on a distribution system to deliver one billion gallons per year of reclaimed water to users in Escondido and the Rincon del Diablo MWD. Initial users will include public schools and parks, private nurseries, public buildings, public and private golf courses, homeowners associations, manufacturers, roadway landscaping, and agricultural customers.

The Escondido Water Reclamation Program has received federal funding for three consecutive years for a total federal contribution of $2.22 million. With this federal support, we have made significant strides with the program. These activities include:

- completion of construction drawings and specifications for both plant and distribution systems;
- EIS approval;
- partial construction of distribution pipelines to deliver future reclaimed water;

- research projects on potential agricultural applications of reclaimed water, intermittent live stream discharge, on-site reclamation retrofit design, and brine discharge.

In addition, this summer we will break ground on a major part of our project that will feature an 18 million gallon per day water reclamation facility at the city's existing secondary treatment facility, the Hale Avenue Resource Recovery Facility.

Along with your support, Escondido city officials have enjoyed a cooperative and close working relationship with the U.S. Bureau of Reclamation. Our program was included in the President's FY 1996 budget request, and we believe we will again have the support of the Bureau in FY 1997.

I also think it is important to demonstrate the broad support the Escondido Water Reclamation Program, as part of the San Diego Area Water Reclamation Project, has received. Local and state officials who, on a daily basis, live with the water concerns and needs in southern California have been forthright with their support of the Escondido program. The San Diego County Water Authority again this year has placed great importance on the continued progress of the San Diego Area Water Reclamation Project.

At the state level, the California Water Commission again has identified the Escondido program on its list of recommended programs. The Commission has recommended an appropriations of $18 million for FY 1997 which, with last year's $9 million request demonstrates their continued strong support for the San Diego Area Water Reclamation Project.

Mr. Chairman and members of the subcommittee, I respectfully ask for your continued support for this long-term solution to San Diego County's waste water and reclaimed water needs.

PREPARED STATEMENT OF THE SAN DIEGO, CA, WATER RECLAMATION PROGRAM

The City of San Diego provides water service as well as wastewater collection, treatment and disposal service to a growing metropolitan area of two million people. The City receives 90 percent of its water supply from Colorado River and northern California sources, hundreds of miles distant from the City. Located at the tail end of this extensive aqueduct supply system, San Diego is most vulnerable to outages or reductions in supplies from these sources. In conjunction with its wholesale water supplier, the San Diego County Water Authority, the City is engaged in a long-term effort to reduce regional reliance on imported water supplies. The San Diego Water Reclamation Program is critical to the success of this effort.

The City will have invested over $200 million in water reclamation facilities through this fiscal year, and has programmed another $100 million in fiscal year 1997 to continue these efforts. Upon completion of the water reclamation and recycling projects in the next 20 years, the City will have an estimated $1 billion of capital investment in this program. The City's projects include 4 new water reclamation plants with a combined capacity of 57 million gallons per day (construction of the 30 mgd North City Water Reclamation Plant is about 70 percent completed) and over 100 miles of reclaimed water distribution system pipelines; an innovative water repurification project to treat reclaimed water to a quality suitable for potable reuse; and a groundwater project providing for conjunctive use of reclaimed water and other sources of supply.

Section 1612 of Public Law 102-575, the Central Valley Project Improvement Act, authorizes the Secretary of the Department of Interior to provide financial support for water reclamation projects in the San Diego area. The U.S. Bureau of Reclamation is authorized to participate in the planning, design and construction of water reclamation projects serving the San Diego area at a federal cost-share of up to 25 percent. Based on the criteria established by the Bureau of Reclamation regarding funding eligibility, approximately $70 million through this fiscal year, and $170 million of the projected expenditures through FY 1997 are eligible for federal funding. Nearly half of the $1 billion of projected expenditures over the next 20 years would be eligible for the 25 percent federal funding.

These costs represent a heavy financial burden for the City to bear alone. Federal participation will help make this innovative water supply program a reality. Therefore, the City of San Diego respectfully requests the Committee to recommend appropriating funds in the amount of at least $9 million in FY 1997 for the San Diego region through the Bureau of Reclamation program.

SAN DIEGO AREA WATER RECLAMATION PROGRAM

The San Diego Area Water Reclamation Program is an ambitious, long-term program designed to decrease regional reliance on imported water supplies. The Program is a cooperative effort by the cities of San Diego, Escondido, and Poway; the Otay Water District; the Padre Dam Municipal Water District; the Sweetwater Authority; the Tia Juana Valley County Water District; and San Diego County Water Authority. Together, these agencies have developed a system of interconnected water reclamation projects that will make the best use of existing and planned water reclamation facilities and result in a cost effective and efficient use of local water resources.

When completed, the San Diego Area Water Reclamation Program will serve an area of more than 700 square miles, from the agricultural valleys near the City of Escondido in the north to the expanding business centers along the international border with Mexico in the south. Ultimately, almost 25 billion gallons (75,750 acre-feet) will be added annually to the region's scarce local water supply, more than doubling the current average local water supply. Facilities to be constructed include up to ten new or expanded water reclamation plants, a state-of-the-art water repurification facility, and hundreds of miles of reclaimed water delivery pipeline.

Implementation of the San Diego Area Water Reclamation Program will produce both economic and environmental benefits. The development of local reclaimed water supplies will provide opportunities for environmental enhancement projects within San Diego County and reduce the demand for imported water from the Sacramento-San Joaquin River Delta, an environmentally sensitive water body of national significance. The availability of a reliable local water supply is also critical to the region's long-term economic health and its ability to attract and retain employers. In the near-term, construction of the reclamation facilities will stimulate the local economy by creating jobs in construction-related industries. After the facilities are completed, many high-wage, high-skill jobs will be created in the operation and maintenance fields.

Construction is already under way for a number of these reclamation facilities. The City of San Diego has completed about 70 percent of the construction of its flagship reclamation facility, the North City Water Reclamation Plant. While still in the planning stages, the proposed Water Repurification Program could have far-reaching consequences for both the San Diego region and the State of California. This innovative water supply project will treat reclaimed water to a quality standard equal to that of untreated water supplies. The repurified water would be stored in a local reservoir for subsequent potable uses. If implemented on a wide scale, water repurification technology could help to solve California's long-term water supply problem.

With an annual cost in the range of $900-$1,200 per acre-foot, the San Diego Area Reclamation Program is competitive with the development of new imported or other local water supplies. However, the level of capital investment makes it a heavy financial burden for the local agencies. The vast majority of the capital costs would have to be funded by local ratepayers. The financial feasibility of this ambitious water supply development project, if funded solely with local resources, is questionable. Federal participation would provide the means to ensure the project is constructed and the benefits realized.

CITY OF SAN DIEGO REGIONAL WATER RECLAMATION PROJECT

The City of San Diego is undertaking a regional water reclamation program which will ultimately provide over 8.6 billion gallons (26,500 acre-feet) of reclaimed water annually to users within the City of San Diego and surrounding communities. The proposed regional reclamation system will include four new water reclamation plants: one in northern San Diego, one in central San Diego, and two in southern San Diego near the international border with Mexico. These water reclamation facilities will serve commercial, industrial and residential customers through a network of over 125 miles of distribution pipeline.

Northern/Central Regional Water Reclamation System

The City of San Diego is scheduled to complete construction of its flagship reclamation facility, the 30-million-gallon-per-day (mgd) North City Water Reclamation Plant (North City WRP), in 1997. The North City WRP could ultimately provide over 4.5 billion gallons (14,000 acre-feet) of reclaimed water annually to meet commercial, industrial and landscape irrigation demands in northern and central San Diego and the southern portions of the neighboring City of Poway. Reclaimed water will be delivered to over 750 user sites via an extensive network of pump stations and pipelines. The City of Poway has completed a portion of its southern reclaimed water distribution system and will complete the remaining portions of the system in time to take deliveries from the North City WRP. Initial users will include the internationally known Torrey Pines Golf Course, Miramar Naval Air Station, and CalTrans, as well as numerous schools, parks, nurseries and residential homeowner associations.

Construction of the North City WRP is creating badly needed jobs in San Diego's construction-related industries. The City estimates that this project alone will generate 4,400 job-years of work for the local community. Construction of the northern/central distribution system is expected to generate an additional 4,200 job-years of work. After the plant is completed, many high-wage, high-skill jobs will be created in the operation and maintenance fields. The development of a reliable local water supply will improve the long-term health of the San Diego economy by enhancing the region's ability to attract and retain employers.

A future reclamation plant is planned for the commercial center of San Diego to supplement reclaimed water from the North City WRP. The proposed 8-mgd Mission Valley Water Reclamation Plant (Mission Valley WRP) could provide 1.3 billion gallons (4,000 acre-feet) of reclaimed water annually for the irrigation of schools, parks, commercial and tourist facilities, cemeteries, nurseries, golf courses, freeway embankments and street medians. This supplemental source of reclaimed water would allow the North City WRP to serve new customers in the developing communities in northern San Diego.

Southern/Otay Regional Water Reclamation System

Construction of the North City WRP will be followed by the construction of the 7-mgd South Bay Water Reclamation Plant (South Bay WRP) near the international border with Mexico. This area is fast becoming a focal point for industrial and commercial development due to its proximity to Mexico and the opportunities that will arise with the advent of the North American Free Trade Agreement. The South Bay WRP will provide almost one billion gallons (3,000 acre-feet) of reclaimed water annually to users in southern San Diego; the Otay Water District; and the cities of Chula Vista, Imperial Beach, and Coronado. Reclaimed water will be delivered to approximately 50 commercial, industrial, and agricultural user sites through an interconnected distribution system. The southern distribution system is scheduled for completion by 2001, concurrent with the start-up of the South Bay WRP.

The estimated costs (in 1996 dollars) for the portions of the City of San Diego Water Reclamation Program which are eligible for PL 102-575 federal funding are as follows:

Northern/Central Regional Water Reclamation System	
North City WRP	$ 46,068,000
Mission Valley WRP	17,040,000
Northern/Central San Diego Distribution System	170,273,000
Subtotal	$233,381,000
Southern/Otay Regional Water Reclamation System	
South Bay WRP	$ 17,213,000
Southern San Diego Distribution System	25,901,000
Otay Valley WRP	30,000,000
Subtotal	$ 73,114,000
Total	$306,495,000

CITY OF SAN DIEGO/SAN DIEGO COUNTY WATER AUTHORITY WATER REPURIFICATION PROGRAM

The City of San Diego and the San Diego County Water Authority (SDCWA) are planning to use cutting-edge technology to purify up to 6.5 billion gallons (20,000 acre-feet) of reclaimed water annually to a level equivalent to that of existing imported water supplies. The Water Repurification Project is the natural outgrowth of a multi-year health effects study conducted by the City of San Diego. The health effects study showed that the quality of repurified water is comparable to the quality of imported raw water supplies and has no health effects.

The City of San Diego and the SDCWA propose to construct a water repurification facility with a capacity of up to 20-million-gallons-per-day (mgd) to treat reclaimed water from the North City Water Reclamation Plant. The repurified water would be transported over 20 miles to the San Vicente Reservoir for blending with imported raw water supplies. The blended water would eventually be conveyed via the existing El Monte Pipeline to the Alvarado Filtration Plant. There the water would undergo additional filtration and disinfection before being introduced into the City's potable water delivery system.

The City of San Diego and the SDCWA conducted a detailed feasibility study which indicated the proposed project is both technically and economically feasible. The State of California Department of Health Services reviewed the feasibility study and conceptually approved the proposed project. A citizens advisory committee convened by the City and the SDCWA concluded that there is sufficient information available to establish the suitability of water repurification as a supplement to the San Diego region's water supply.

The Water Repurification Program is expected to replace the less cost-effective elements of the City of San Diego's proposed non-potable distribution system. Implementation of the Water Repurification Program in combination with selected elements of the non-potable distribution system would allow the City to achieve the most efficient use of water from its North City WRP. Should the Water Repurification Program prove feasible, it could begin operation as early as 2000.

The proposed Water Repurification Program has potentially far-reaching consequences for both the San Diego region and the State of California. California has a wastewater stream of some 2.5 to 3 million acre-feet per year, the vast majority of which is going unused. By providing for the near total recovery of this non-traditional resource, the Water Repurification Program could help to solve California's chronic water supply problem.

The estimated cost of the Water Repurification Program in 1996 dollars is $114,800,000, which includes $72,800,000 for the advanced water treatment facility and $42,000,000 for the repurified water conveyance pipeline and pump station. Cumulative expenditures through fiscal year 1997 are projected to total $17,600,000.

SAN PASQUAL GROUNDWATER PROJECT

The proximity of the San Pasqual Groundwater Basin to the City of Escondido's Hale Avenue Resource Recovery Facility (HARRF) provides a unique opportunity for the conjunctive use of reclaimed water and groundwater supplies. The San Pasqual Valley, an agricultural preserve located within the incorporated limits of San Diego, contains wetland, riparian and other sensitive habitat. The world-renowned San Diego Wild Animal Park is also located within the preserve's boundaries. The existing City of San Diego's 1-mgd San Pasqual Aquaculture Plant provides reclaimed water for irrigation purposes to agricultural customers in the Valley and residential and commercial users in the community of Rancho Bernardo.

The City of San Diego proposes to construct a San Pasqual Groundwater Project which will recharge up to 2.6 billion gallons (8,000 acre-feet) of reclaimed water from the HARRF into the San Pasqual Valley Groundwater Basin. The reclaimed water will blend with natural sources of recharge and will subsequently be extracted and treated at a 5-mgd reverse-osmosis facility, to be located at the San Pasqual Aquaculture Plant site.

The San Pasqual Groundwater Project will add approximately 2.6 billion gallons (8,000 acre-feet) to local water supplies. In addition to the benefits derived from job creation in the construction and service industries, implementation of this project will result in the preservation of sensitive habitat and the protection of a vital watershed area. Improvement of the groundwater quality in the basin will also help farmers reliant on groundwater supplies remain economically viable and maintain the San Pasqual Valley's agricultural identity.

The estimated cost of the City of San Diego San Pasqual Groundwater Project in 1996 dollars is nearly $47 million.

PREPARED STATEMENT OF ROBERT GOLDSWORTHY, WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

ALAMITOS BARRIER RECYCLED WATER PROJECT SUMMARY

My name is Robert Goldsworthy, and I am here today to represent the Water Replenishment District of Southern California. We appreciate being involved in this important process.

Concept

I wish to speak on behalf of the Alamitos Barrier Recycled Water Project, the project before you, which represents a unique opportunity to recover 3,000 acre feet (almost one billion gallons) a year, ultimately 8,000 acre feet of treated municipal wastewater from the City of Long Beach. This water, now lost to the ocean, would be purified and injected into the Alamitos barrier wells. WRD is also currently working with our Congressional Representative, the Honorable Steve Horn on HR 2738, the bill by which we are to be authorized.

Benefits

The Alamitos seawater barrier is one of three injection well systems for which the District provides water. This water is injected directly into the drinking water aquifers along the coast. We would displace the potable water now used in the Alamitos Barrier Injection Wells along the Southern California coast, used to replenish and protect the groundwater basins in both Los Angeles and Orange Counties from seawater intrusion.

The District is a regional groundwater management agency. The groundwater for which we are responsible is vital to Los Angeles County. Our basins underlie about 420 square miles, which is roughly the southern half of the county. And we serve 3.5 million people and 43 cities. About 40% of the drinking water in that area is groundwater. Even though the basins are adjudicated, natural percolation is unable to keep up with the 200,000 acre feet a year demand we have at present. And so, we currently purchase about 75,000 acre feet a year of water from the Colorado River and Northern California to make that balance work.

During the last drought in California, our Board of Directors became very concerned that the reliability of the imported supply was not assured. Thus, we embarked upon a program to substantially reduce our dependence upon those sources and even, eliminate them if possible. This project would insure continued availability of groundwater during periods of drought and following natural disasters that could interrupt surface water deliveries.

Our District is currently underway with final designs. The costs, amortized over the life of the project, are about $600 an acre foot. This is more than we are paying for imported water today; but when compared with the cost of almost any other new supply of water in the West, is very reasonable to increase the reliability of the drinking water supply to 3.5 million people.

Why This Project and Not Others?

- Project enhances the reliability of a mammoth groundwater basin with reserves estimated at over 10 million acre feet.
- Project benefits a wide area: 420 square miles, 3.5 million people, 43 cities.
- Water Replenishment District is the largest regulated user of reclaimed water for groundwater recharge. Recently completed Rand Corporation study confirms public safety of this practice.
- Federal funds would be "multiplied" by the Metropolitan Water District of Southern California's $250 per acre foot Local Projects Program rebate.
- Efficient execution would be made by the small, motivated, highly qualified staff of Water Replenishment District.
- Project would verify the benefits assumed for the microfiltration process, which will reduce the cost of future water reclamation.

In closing, we wish to express our gratitude to the California Water Commission for their support in this effort. And certainly, our District and the 3.5 million constituents we serve would appreciate Appropriation Committee approval as well! Thank you.

RE: Federal Financial Assistance Request

Introduction

Mr. Chairman and Members of the Subcommittee. Thank you for the opportunity to testify today on the U.S. Bureau of Reclamation Appropriations for fiscal year 1997. I am Robert Goldsworthy, Board Member for the Water Replenishment District of Southern California (WRD). Accompanying me is Jeffrey Helsley, Assistant General Manager. I wish to briefly tell you about the District and its mission, elaborate somewhat about the project scope and indicate how your support for funding will help ensure a reliable supply of drinking water at reasonable cost for the people in the southeast area of Los Angeles County.

District Background

The Water Replenishment District of Southern California (WRD), located in southern Los Angeles County, is governed by an elected five member Board of Directors. It was formed in 1959 to manage the Central and West Coast Groundwater Basins and serve 420 square miles of 3.5 million people in 43 cities. WRD's primary objectives are to replenish the groundwater basins, halt seawater intrusion, and provide high quality groundwater for area residents.

Groundwater is an important source of water in southern Los Angeles County, supplying approximately 40% of the total water needs in our District and, in some of our cities, 100%. Groundwater reserves also provide an emergency source of water if imported supplies are interrupted or lost during earthquakes, or if drought or other natural disasters reduce the availability of imported water. It is essential that this valuable resource be protected.

Replenishing Groundwater Basins with Recycled Water

The Water Replacement District now purchases 75,000 acre feet per year of expensive imported water from the Colorado River and Northern California to artificially replenish the groundwater basins. Natural replenishment from percolation of storm water simply isn't enough. Moreover, years of overpumping before the District was formed, emptied the basins and that lost inventory must be replaced.

Low water levels allow seawater to enter the edges of the basins, contaminating and forcing the shutdown of numerous wells. Thus, about 35,000 acre feet per year of the District's expensive imported water purchases are used for injection into wells drilled along the coast. This water serves two purposes: it halts further intrusion of seawater and also replenishes the basins.

Today, Southern California's gradual loss of entitlements to both Colorado River and Northern California water and recent droughts have convinced us that a more reliable supply of water for these seawater barrier wells must be developed to protect our critical groundwater resource.

As a result, the District has an aggressive program to increase the use of recycled water. WRD's goal for the Alamitos Barrier is to totally eliminate our dependence upon imported water for injection and replace it completely with recycled water and local stormwater runoff.

Alamitos Barrier Recycled Water Project

Working together with the Orange County Water District and the City of Long Beach, the District is proceeding with plans to build a 3,000 acre foot per year reclamation plant. With the barrier system extending into Orange County, Orange County sees the benefits of their participation, while the City of Long Beach holds title to the recycled water which will feed the new plant.

Initially, the plant replaces 50% of the imported water now being injected into the Alamitos Seawater Barrier, one of three widespread barrier systems for which the District provides water. The second stage expands the treatment plant to (8,000 acre feet and provides) 100% substitution of imported water. The proposed plant is consistent with Metropolitan Water District's new Integrated Resources Plan, which anticipates 700,000 acre feet per year of additional water reclamation by the year, 2010.

Design work for the project is underway. A bid package will be issued in August for final designs and construction, which is targeted to start late 1996. We anticipate plant startup in early 1998.

Feedwater for the project will be recycled water that would otherwise be discharged into the San Gabriel River. Advanced treatment equipment, including microfiltration and reverse osmosis, will be put in place to purify the water and meet the stringent requirements of the State Department of Health Services and the Regional Water Quality Control Board.

The capital cost is currently fixed at $15 million. Even though one-half of this will be paid by the Orange County Water District, this project is an ambitious undertaking and the first major construction project for our District..

By amortizing the construction cost, adding operation and maintenance costs and backing out anticipated reimbursements from the Metropolitan Water District's Local Projects Program, the cost of water produced from the plant will be around $600 per acre foot. Although this is more than the current cost of imported water, it is well within the range of costs for new water supplies throughout the West.

In order to ease the additional burden on our local ratepayers, we need federal fund assistance. We sincerely thank the California Water Commission for recommending this project for your consideration. Consistent with HR 2738, we request a total of $3,275,000 through fiscal year 1998; $2,625,000 of that in fiscal year 1997 will cover 25% of the project's construction cost. Federal support will enhance the project's economics and ensure the viability of our precious groundwater basins into the next century.

We are available to answer any questions.

PREPARED STATEMENT OF J.R. VELTHOEN, EXECUTIVE DIRECTOR, PORT HUENEME WATER AGENCY, PORT HUENEME, CA

Chairman Myers and members of the Subcommittee, my name is Frank J. Chiella, President of the Board of Directors the Port Hueneme Water Agency. The Port Hueneme Water Agency ("Agency") was formed by the City of Port Hueneme and the Channel Islands Beach Community Services District in July of 1994 as a Joint Powers Agency, governed under the laws of the State of California. I am

here today, together with Port Hueneme City Councilmember, Orvene Carpenter, Past President of the Board of Directors of the Port Hueneme Water Agency, to seek the Subcommittee's support for our request to receive $2.5 Million in cooperative funding from the United States Bureau of Reclamation for a Brackish Water Reclamation Demonstration Facility ("Facility") during Federal Fiscal Year 1996-97.

PROJECT SUMMARY

The Port Hueneme Water Agency was formed to deliver high quality water to an area in southwest Ventura County which includes the City of Port Hueneme, Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and Naval Air Weapons Station - Point Mugu. To provide high quality water, the Agency is implementing a Water Quality Improvement Program which involves discontinuation of groundwater extractions from wells along the coast threatened by seawater intrusion; demineralization of local groundwater supplies and the importation of State water through the Calleguas Municipal Water District, a member agency of the Metropolitan Water District of Southern California.

The cornerstone of the Agency's Program is a Brackish Water Reclamation Demonstration Research Facility, ("Facility") which will serve as a state-of-the art sub-regional water treatment plant. The Facility will provide 3.0 million gallons per day (mgd) of water treated to the quality of imported State water. The three desalination technologies considered most applicable to reclaim local sources of brackish groundwater which are scheduled for installation at the Facility include: *reverse osmosis*, *nanofiltration*, and *electrodialysis reversal*. Each would treat approximately 1.0 mgd of brackish groundwater in a side by side, full-scale, operational demonstration of each technology. By applying these different technologies to the same water source, long-term operating and economic data will be collected and compared, and made available for use nationwide.

The estimated capital cost of the construction elements of the Program is approximately $11 million (in 1996 dollars). The Agency is requesting $2.5 Million in cooperative funding from the Bureau of Reclamation for Federal Fiscal Year 1996-97, pursuant to the authorization found in Section 1605 of the Reclamation Wastewater and Groundwater Study and Facilities Act (Title XVI) of Public Law 102.575. This section authorizes the Bureau to provide cooperative funding to local water agencies up to 50 percent of the total cost of the Facility.

The Facility will assist other communities throughout the nation to understand and then select the most appropriate brackish groundwater desalination technology for their specific application. The facility could become a location to provide research opportunities and water treatment operator training. Accordingly, the availability of this demonstration research facility in California should make it easier for other communities to successfully implement brackish water desalination and groundwater reclamation, as a major element in the strategy of local compliance with the increasingly stringent regulatory standards found in the Safe Drinking Water Act Amendments. Also, in resolving problems with the contamination of local groundwater supplies, and increasing water supplies to drought sensitive areas.

PROJECT BACKGROUND

Currently, the four agencies listed above utilize brackish groundwater from the Oxnard Plain Groundwater Basin, which is listed in California Department of Water Resources Bulletin 118 as a critically overdrafted basin and is under active basin management by the Fox Canyon Groundwater Management Agency. The groundwater used by these agencies is extracted locally from deep aquifer wells increasingly subject to seawater intrusion along the coast, or delivered from upper aquifer wells located inland by the United Water Conservation District. Both groundwater sources are deemed brackish, in that they have a a total dissolved solids (TDS) content of greater than 1000 mg/l and a hardness in excess of 500 mg/l. *By comparison, water quality in the Washington, D.C. urban area averages 217 mg/l, TDS and 126 mg/l in Hardness.*

The Agency was formed to secure a safe, reliable, high quality, environmentally sound and economical water supply for the City of Port Port Hueneme, the Channel Islands Beach Community Services District, Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Pt. Mugu. Prior to the formation of the Agency, increasing overdraft of the local groundwater basin, seawater intrusion, poor water quality and aging infrastructure had prompted each of the aforementioned participants to independently pursue water supply and quality improvement projects.

PROJECT DESCRIPTION

The Agency's project involves the construction of a 3.0 mgd sub-regional water treatment plant, the Facility, and various transmission pipelines to deliver a blend of desalinated local brackish groundwater and imported State Project Water. The primary source of local brackish groundwater for the Facility will be the United Water Conservation District. This local groundwater is highly mineralized and contains trihalomethane precursors. To treat this water, a combination of three desalination technologies will be used. State Water Project water will be blended with desalinated local groundwater through existing and proposed transmission pipelines. To optimize the utilization of the water treatment facilities, the proposed plant's capacity is based on current minimum diurnal water demands of the project participants. Peak day and fire flow demands will be met by State Water Project water deliveries.

The construction and operation of the Facility will provide a unique opportunity for the Federal government to enter into an innovative Federal-State-Local partnership with California water agencies in order to obtain hard research data from the operation of a full-scale, groundwater desalination treatment facility in Ventura County, California. *To the best of our knowledge, there are no such full-scale Brackish Water Reclamation Demonstration Research Facilities operating in the United States using the aforementioned three desalination technologies simultaneously.*

PROJECT BENEFITS

Over 50,000 customers of the Agency, including the Naval Construction Battalion Center - Port Hueneme, and the Naval Air Weapons Station - Point Mugu, are expected to derive significant benefits from the project including improved water quality, an increase in economic development and job creation resulting from the construction of the Facility, and obtaining a long-term, safe, reliable and environmentally sustainable high quality water supply which meets current and proposed water quality drinking standards under the Safe Drinking Water Act Amendments. Water quality to the Agency's customers will be greatly improved through the construction of the Brackish Water Reclamation Demonstration Research Facility to treat brackish local groundwater supplies supplemented by imported State water from the Calleguas Municipal Water District and the Metropolitan Water District of Southern California.

Long-term water supply reliability for the Agency's customers and the Port Hueneme Subregion will be improved by access to both demineralized groundwater from local sources and imported State water. The delivery of imported State Water Project Water will also allow the Agency's members to reduce groundwater extractions from coastal wells threatened by seawater intrusion. Seawater intrusion will be minimized by relocating groundwater extractions from the coastal area to inland recharge areas.

Benefits accruing to the Agency's customers which result from the implementation of the Port Hueneme Water Quality Improvement Program, including the Facility, include the following:

1. elimination or reduction in the need for expensive and highly inefficient home water softening units, thereby reducing the need to desalinate wastewater effluent proposed for reclamation in the future.

2. reduction in the cost of soap and cleaning products for those water customers who do not provide home water softening.

3. reduction in the costs of repairs and replacement of plumbing, plumbing fixtures and water using appliances.

4. reduction in the cost of purchasing bottled water and/or household reverse osmosis units.

5. avoidance of potential penalties associated with the staged reductions in groundwater pumping allocations imposed by the Fox Canyon Groundwater Management Agency.

6. avoidance of additional Water Treatment Costs imposed by Federal and State Regulatory Agencies.

The construction and operation of the Facility will provide a *unique opportunity* for the Federal government to enter into a Federal-State-Local partnership with local water agencies to obtain hard research data from the operation of a full-scale, groundwater desalination treatment facility in Ventura County, California. To the best of our knowledge, there are no such full-scale Brackish Water Reclamation Demonstration Research Facilities operating in the United States using the aforementioned three desalination technologies simultaneously.

PROJECT PROGRESS

The Agency has made significant progress with the Water Quality Improvement Program. Annexation of the Port Hueneme Subregion to the Calleguas Municipal Water District and Metropolitan Water District has been completed; a joint NEPA/CEQA Program Environmental Impact Report is being circulated for public review and comment; preliminary design work is underway; and bids for the construction of the project will be solicited by the Agency in early summer. Construction of the pipeline network is expected to begin by mid-1996, and State Water is anticipated to be received by the end of 1996. Demineralized groundwater from the new water treatment plant is anticipated to be delivered to the Agency's customers by mid-1997.

We believe that this facility will provide a unique opportunity to study Brackish Water Desalination in California and solicit the Subcommittee's continued support for the Agency's Program. Thank you very much for the opportunity to address the Subcommittee.

PREPARED STATEMENT OF PAUL ROSENSTEIN, MAYOR, CITY OF SANTA MONICA, CA

Mr. Chairman, Members of the Committee, my name is Paul Rosenstein. I am the mayor of the City of Santa Monica

On behalf of the City, I respectfully request the Committee's support for an appropriation of $3,200,000 (Corps of Engineers, Construction) for the Santa Monica Breakwater Project. This represents the Corps' capability on this project, which is critical to the City of Santa Monica's efforts to restore adequate protection to the Santa Monica Pier and reestablish commercial and recreational boating opportunities in the Santa Monica area.

I would also like to request the Committee's support for a $600,000 appropriation (Corps of Engineers, General Investigations) to initiate a water infrastructure and reliability study in the fiscal year 1997 Energy and Water Development Appropriations Bill. This special study will assist the City of Santa Monica in its efforts to develop a more dependable water supply for the City, particularly with respect to minimizing interruptions that might result from earthquakes.

Santa Monica Breakwater Project: This project is critical to the City of Santa Monica's efforts to restore adequate protection to the Santa Monica Pier and shoreline and to reestablish commercial and recreational boating opportunities in the Santa Monica area.

The existing breakwater was built in 1934 to protect the Santa Monica Pier and to provide a harbor for commercial and recreational boats. Over time, the breakwater has eroded and during the severe winter storms of late 1982 and early 1983, the pier and its facilities sustained more than $8 million in damage. Forty-five moorings for commercial and recreational boats were lost in these storms as well.

The project will protect the Pier and its facilities from damages now estimated in excess of $20 million from a single 100-year storm. It will also allow the City of Santa Monica, to restore commercial and recreational boating activities to the Pier. The City will invest over $1 million of its own resources into the construction of twelve moorings and a boat dock. This investment is in addition to the City's required $1.5 million match for the rest of the project. The income from charter fishing boat operators, which will only use a portion of these facilities, is anticipated to top $869,000 a year.

Mr. Chairman, the draft feasibility study was completed some six months ago. Washington level review is expected to be completed later this spring. It is, therefore, my full expectation that the project will be favorably considered when the authorizing Committees take up the Water Resources Development Act.

Given the urgent need for the project and the fact that the feasibility study will soon be completed, I urge you to take whatever actions are necessary to ensure that the funding for this project remains on track.

Water Infrastructure and Reliability Study: The Corps of Engineers is authorized to undertake such studies under 116(d) of the Water Resources Development Act of 1990. These studies assess the vulnerability of water, sewer and drainage systems as well as identify the steps that can be taken to restore these services to full service following a major seismic event.

The House of Representatives approved $350,000 for this study in the fiscal year 1996 energy and water bill, but the Senate failed to approve the project. As you know, however, two other similar studies have been funded by the Congress, one for the City of Norwalk in fiscal year 1995 and one for the City of Arcadia in fiscal year 1996.

While the Congress' support for similar studies in the past is encouraging, it is on the basis of the overwhelming need for this study that the City of Santa Monica makes this request. The City of Santa Monica has a population of over 87,000 people and property values of over $9.5 billion. The City is highly vulnerable to major damage from earthquakes. The disruption of water supply services for fire protection, domestic and industrial uses could result in catastrophic public safety and health protection as well as cause enormous economic losses as evidenced in the Northridge earthquake, the historic disaster of the San Francisco earthquake and last year's disaster in Kobe, Japan.

The earthquake study would evaluate existing water supply systems and risks of earthquake damage, and develop plans for seismic upgrade of facilities, emergency supply and delivery plans, system restoration requirements and government roles and responsibilities. The results of this study would provide a model for dealing with earthquake and other disaster-related water supply problems that can be applied to other major urban areas in the nation.

Mr. Chairman and Members of the Committee, I want to stress one thing: the results of this study are valuable by themselves We will take this product and use it to develop plans for improvements to our system that we will seek to finance from a variety of sources, primarily local government. It is our understanding that the Corps of Engineers will not be authorized to initiate construction work on most, if not all, of the projects that would be recommended from the study we envision. But it is our strong belief that the product of this effort will create new funding opportunities, from public financing by the City to assistance from EPA and FEMA, to achieve the improvements identified in this study.

On behalf of the City of Santa Monica, thank you for this opportunity to testify and thank you for your consideration

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PREPARED STATEMENT OF YVONNE ARCENEAUX, THIRD DISTRICT COUNCILWOMAN, CITY OF COMPTON, CA

Mr. Chairman, Senator Johnston, and other Members of the subcommittee, I am Yvonne Arceneaux, Third District Councilwoman from the City of Compton, California. I want to thank you for the opportunity to provide testimony on behalf of the City concerning the U.S. Army Corps of Engineers' involvement with the Compton Creek.

The City of Compton is a strong, resilient community fifteen miles south of downtown Los Angeles, with a solid heritage spanning 107 years. These 107 years have brought the winds of change and sometimes adversity, but the citizens of Compton have displayed a remarkable ability to overcome each hardship with new resolve and determination. Many outside our city are unfamiliar with the full breadth of our story. Some only remember Compton as being one of the areas that experienced civil unrest following the Rodney King trial; while others identify the City only with crime and gang activity. There is, however, another side to the story. The vast majority of Compton's 91,000 residents are hardworking, law-abiding citizens who are dedicated to uplifting the community. Their actions have left an indelible impression on the fabric and structure of the City. As a result of this type of community involvement, Compton has experienced a reduction in violent crime and gang-related activity in recent years. Moreover, the year following the civil unrest, Compton was named as one of the top 25 large metropolitan submarkets in the United States for economic development.

Mr. Chairman, I am submitting this testimony in hope of resolving a long-standing issue that is of critical importance to the people of Compton. Within the city boundaries of Compton lies the Compton Creek channel, a tributary to the Los Angeles River and part of the Los Angeles County Drainage Area. Maintenance of the Creek has been the responsibility of the U.S. Army Corps of Engineers and the L.A. County Department of Public Works. Over the past several years, the portion of the Creek under the maintenance supervision of the Corps has deteriorated to such a state that it now poses a direct threat to the ecological environment of the City of Compton and neighboring communities.

Nearly ten years of undermaintenance, coupled with intermittent seasonal flows and unrestrained dumping, has left the Corps-managed portion of the channel with accumulated sediments, debris and a thick mat of non-woody, weedy and monocot vegetation. These sediments and vegetative shoaling have threatened the channel's design ability to carry high flows to the L.A. River. During January 1995, as a result of these circumstances, stormwater overlapped the channel banks, causing flooding in several areas surrounding lower Compton Creek. In addition to environmental hazards, the City is also concerned with the creek's adverse effect on economic conditions and the health and safety of the surrounding neighborhoods. Many residents have legitimate concerns about a potential decrease in their property values, due to the inadequate flood control. The infestation of rodents, in the portion of the creek where there is vegetative shoaling, has proven to be a particular problem for economic developments near the creek. Immediately adjacent to this portion of the creek is the location of one of the City's most significant redevelopment projects; the Renaissance Hotel project. Rodent infestation was a problem for the previous property owners, and to the extent that the problem persists, the success of the Hotel project could be compromised.

The accumulated debris and vegetation has also harbored unsanitary conditions in the creek. In addition to becoming a feeding ground for mosquitoes and rodents, it has also become a dumping ground for dead animals, abandoned cars, and other waste. In 1994, the City attempted to rally the community to try and clean up a portion of the creek. The clean-up had to be cut short, because of the overpowering stench from the channel and because a number of residents, including Omar Bradley, the Mayor of Compton, became very ill from direct contact with the creek. In the spring of 1995, the City combined efforts with a local environmental group to once again, attempt to clean up a portion of the creek. There was a significant show of support by city residents, but the energy, trash bags, and garden tools were not enough to tackle this arduous task.

We are also concerned for our children's sake. Within a two mile radius there are a number of elementary and high schools and the potential for serious injury exists if these children should happen to stray into the creek. In several locations, the fencing along the creek has been torn down and not repaired, providing an invitation to children to enter the creek right-of-way. Furthermore, the City has been informed that the current height of the fencing along the creek, three feet, is no longer the standard fence height, and should be replaced with fencing five feet in height. The Corps has indicated that they are designing fencing alternatives. However, after almost ten years, nothing has been implemented.

Since 1987, the City has sought to work with the Los Angeles District Army Corps of Engineers, in an effort to clean up the creek. From day one, the Army Corps of Engineers has accepted the responsibility of the clean-up of their portion of the creek. However, while it is true the Corps has provided maintenance in the area over this period of time, it has proven to be insufficient and ineffective. In Fiscal Year 1994, funds had been provided for the removal of vegetation and debris from the creek, but were deferred to repair flood damages to Corps projects in Arizona.

In 1994, with the help of various Members of Congress, the City was able to facilitate a meeting between the Corps and the County to establish a comprehensive plan that would provide for a major one time clean-up of the sediment and shoaling, and for an adequate on-going maintenance operation of the creek. Officials from both sides acknowledged the need for a clean-up and agreed that facilitation of the clean-up should begin immediately. Three months later, following the flooding in January, a scope of work was put together by the Corps identifying their approach to the clean-up of the sediment and vegetative shoaling. Seven months passed before the City heard from the Corps regarding the environmental assessment. The assessment also called for a major clean-up of the creek to ensure proper flood control and to reduce health and environmental risks. Another three months after this assessment, tests of the sediment in the Corps portion of the creek revealed yet another problem: hazardous traces of lead.

Mr. Chairman, the City is at its wits end. Compton has used numerous city resources that would otherwise have been used to fulfill the City's responsibilities to its taxpayers to deal with an issue that has grown out of control. The presence of lead is just one more reason why the Corps needs to quickly and effectively take care of their responsibilities to the creek. In this vein, the City of Compton asks that within the FY97 Energy and Water Appropriations bill, the Committee provide $500,000 and direct the Corps of Engineers to perform a major one-time clean-up of the creek sediment and vegetative shoaling, and to work with the City to establish an adequate on-going maintenance program. It is Compton's intent to work with the Corps to achieve a desirable result. With the Committee's help, I believe we can make it happen.

Mr. Chairman, thank you again for providing the City of Compton the opportunity to submit this testimony for the record.

PREPARED STATEMENT OF THE CALIFORNIA FARM BUREAU FEDERATION

The California Farm Bureau Federation (CFBF) is the largest general farm organization in the state. We have more than 42,000 member farm families and more than 75,000 member families in total. Nationwide our views are reflected by the American Farm Bureau Federation, which represents more than four million members. We appreciate the opportunity to provide a statement in support of the positive changes that are necessary to ensure an adequate and sustainable supply of quality water for all Californians. This subcommittee and Congress have an excellent window of opportunity to address these problems in a very constructive and meaningful way that benefits all of California.

CFBF is very concerned about the state's inability to provide enough water to meet present and future water demand and its implication for family farms throughout California. California's average annual water supply could actually decrease during the next 25 years, according to the California Department of Water Resources (DWR). The most recent water budget issued by DWR, generally known as Bulletin 160-93, predicts a water deficit in the state by the year 2020 of 3 million acre/feet of water during an average year and up to 10 million acre/feet in drought years. These figures are conservative and assume that increased water conservation, water recycling, conjunctive use and storage south of the Sacramento-San Joaquin Delta will all be accomplished and will be effective in reducing the water deficit.

Even in years of normal rainfall, pressures from overburdensome regulations have resulted in drought conditions for California's farmers and ranchers. A regulatory drought has caused water supplies to be dramatically scaled back. On February 15, 1996, the Bureau of Reclamation released their plans for water allocations for the Central Valley Project at 60 percent of contract supplies to most agriculture customers. This announcement serves as an illustration of the worsening predicament of the state's farmers to provide high quality food and fiber efficiently and with affordablity. While precipitation has improved, the permanent regulatory drought continues for farmers in the Central Valley. Despite the recent rainfall and snow storms, farmers will not realize their full irrigation supplies supposedly guaranteed by contract.

In announcing the deliveries, officials cited physical limitations preventing them from delivering more water. Due to federal and state environmental restrictions, more water is diverted to wildlife refuges. Farmers will have to reduce production or resort to pumping precious groundwater supplies to make up the shortfall in surface deliveries, further aggravating over drafted basins.

While California's water supply decreases, the state's population continues to increase. The state forecasts a population of 49 million people by 2020, up from 30 million in 1990. Even with extensive water conservation, the state forecasts urban water demand will increase by approximately 3.7 million acre/feet by 2020, to reach a total demand of 10.5 million acre/feet of water. The average annual net water demand for environmental needs is projected to increase by an additional 400,000 acre/feet by 2020. (Meanwhile, agriculture net water demand is expected to decline by 1.9 million acre/feet by 2020.) With population exploding and water delivers decreasing, how are California farmers and ranchers going to provide more food and fiber?

The answer to the state's growing population and the continuation of the regulatory drought, is the development of new California water supplies. Experience already shows that additional facilities must be authorized and constructed to provide needed flood control and stream bank protection.

Since the December 15, 1994 Bay/Delta Accord, CFBF has actively participated in the CALFED Bay-Delta process. The CALFED process is an unprecedented effort to bring all stakeholders together to craft a solution that will benefit all parties. The CALFED agencies include the California Department of Fish and Game, Department of Water Resources, California Environmental Protection Agency, California Water Resources Control Board, The U.S. Environmental Protection Agency, Fish and Wildlife Service, Bureau of Reclamation, and the National Marine Fisheries Service. We remain committed to finding solutions to California's water supply problem and believe that a long term solution to the Delta is critical to agriculture and water management in California. A Delta solution is essential to assure the maximum utilization of any stored or conserved water. We therefore urge an expeditious review of the options outlined by CALFED to move water more efficiently through the Sacramento-San Joaquin Delta. We also urge an appropriate level of federal funding for on the ground improvements as part of this effort.

The most recent large scale reservoir completed by the federal government was the New Melones Reservoir on the Stanislaus River in 1979. There are approximately 1,400 reservoirs in California, which can hold about 42 million acre/feet of water. The State Department of Water Resources describes that capacity as "a relatively small amount of storage in proportion to the 71 million acre/feet of annual runoff." The clock is ticking for California to balance its water budget.

A prime example of new water development is the need for the Auburn Dam as a multi-use facility We believe the required local support exists, and that there is the utmost urgency for Congress to reauthorize the Auburn Dam, which will help protect the interests of all U.S. citizens in the food productivity of the country and the flood protection of one of California's most populous metropolitan areas.

However, for any policy to succeed, California agriculture water rights and the protection of agriculture land must not be diminished. Agriculture has traditionally had secure rights to water and land, but these rights are being undermined by an increasing population and new demands for urban and environmental uses.

Once again, thank you for the opportunity to submit a statement to the subcommittee on the need for water development in California

PREPARED STATEMENT OF LOUIS N. GARCIA, DIRECTOR, ENVIRONMENTAL SERVICES DEPARTMENT, CITY OF SAN JOSE, CA

Summary

South Bay Water Recycling is a $140 million regional project to recycle up to 20 million gallons per day of highly treated wastewater for nonpotable reuse in California's Silicon Valley. The project is being undertaken to comply with federal and state mandates protecting wetlands in the south end of San Francisco Bay. The U.S. Bureau of Reclamation is authorized to fund 25% of project costs through Title XVI of PL102-575. In order to meet the mandatory compliance schedule set by the EPA and the California Water Resources Control Board, area cities and agencies will spend an estimated $90 million for construction of the project during the 1997 federal fiscal year alone. On behalf of all the participating communities, the City of San Jose requests a Congressional appropriation of $15 million to ensure timely completion of the project, which will help preserve the environmental and economic health of Silicon Valley.

Chairman Myers, Members of the Committee:

My name is Lou Garcia, and I am the director of the Environmental Services Department of the City of San Jose, California, "Capital of Silicon Valley." I am here to ask you to appropriate $15 million to the Bureau of Reclamation in the next fiscal year for South Bay Water Recycling (SBWR), our regional program, to recycle up to 20 million gallons per day of treated wastewater from the San Jose/Santa Clara Water Pollution Control Plant for reuse in landscaping, agriculture and industrial applications. The project involves construction of 60 miles of recycled water pipe and pump stations to irrigate over 4,000 acres in high-tech business parks, schools and golf courses at a cost of approximately $140 million. Federal participation is authorized by Title XVI of the Reclamation Projects Authorization Act of 1992 (Public Law 102-575), Section 1607, "San Jose Area Water Reclamation and Reuse Program."

The SBWR program is being implemented by the cities of San Jose, Santa Clara and Milpitas, five sanitary districts, and the Santa Clara Valley Water District as an alternative to a limit on the discharge of treated wastewater to the south part of San Francisco Bay. In 1989, a flow cap was mandated by the US Environmental Protection Agency and the California Water Resources Control Board, which required us to divert fresh water discharges from the salt marsh habitat of two endangered species -- the salt marsh harvest mouse and the California clapper rail. Without this project, we will lack the capacity to treat wastewater from residents and businesses, such as manufacturers of printed circuit boards, semiconductors, disk drives and other product critical to the computer industry.

South Bay Water Recycling program deserves your special attention and support for three reasons:

1. The SBWR program is mandated by federal and state environmental laws which have determined the costs and schedule of the program required to divert effluent from the South Bay.

2. This project is essential to the health of the Silicon Valley economy, which is only now recovering from an extended recession. Without this project, the region could face a sewer moratorium, which would threaten our global competitiveness in the high-tech computer industry.

3. By participating in this project, which is highly leveraged with local funds, the federal government has an opportunity to establish a model for urban resource management throughout the United States.

The primary motivation for the timing on this project is the schedule for project completion set by the federal and state government through the Endangered Species and Clean Water Acts. Construction is scheduled to be completed in late 1997 for use in the 1998 irrigation season, and costs during the 1997 federal fiscal year alone are projected to reach $90 million. Unfortunately, appropriations from the Bureau of Reclamation have significantly lagged project expenditures. In 1996, for example, project expenses will exceed $30 million. By contrast our appropriation for the 1996 federal fiscal year, initially approved at $1.75 million, has been reduced still further to only $1.4 million.

The local share of this project is being financed by a combination of bonded debt, cash and in-kind service contributions from participating cities and agencies, which to date have dedicated more than $30 million to the project. An additional $85 million in bonds was sold in November, 1995, which will be repaid out of sewer fees. These fees have increased by as much as 50% over the past five years to cover the cost of environmental programs. Should the Bureau continue to fail in its commitment to reimburse the agencies for eligible SBWR costs, we could be forced to increase sewer fees still further to cover project costs, which would seriously damage the region's economic and employment climate.

Reduced federal support would also result in a cutback in the scope of the recycled water program, limiting the amount of recycled water diverted form the Bay and diminishing our ability to supply water and provide wastewater treatment capacity. There are currently some 4,000 high tech companies in the San Jose Metropolitan Area, employing over 200,000 people. That number could double in the next ten years as computer technology ventures into new markets. But our competitive global economy will not favor those who squander their capital resources, either natural or financial.

It takes ten gallons of water to make one computer chip. Some semiconductor manufacturers in our area use more than a million gallons of water per day. Discharge of this industrial wastewater is stringently regulated, while at the other end of the pipe, these same companies faced mandatory water rationing during the last drought. By giving water a second chance, reducing pollution and reusing a valuable commodity, South Bay Water Recycling will support Silicon Valley businesses, and help to keep our country competitive globally in the aggressive high-tech industries of the future.

San Jose is not alone in confronting these challenges. The successful communities of the next century will be those that make the most intelligent use of all their assets, reducing waste and turning pollution problems into opportunities. All across the nation, cities and towns are faced with the dilemma of minimizing the impacts of wastewater treatment on the environment and the economy. In our own area, we need your continued support for flood control programs being constructed by the Corps of Engineers on the Guadalupe River, and on Coyote and Beryessa Creeks. We are also partners with the Bureau and other cities and agencies participating in and supporting the study of regional water recycling opportunities known as the San Francisco Area Water Reclamation Study.

We appreciate the support for SBWR this committee has shown during the past two years. Since we appeared before this committee last year, we have made significant progress on the design and construction of this project. A $6 million contract was awarded in January, 1996 for construction of the first section of pipe which will bring the water from the treatment plant to the 4400-horsepower transmission pump station. The pump station is now out for bid, with construction slated to begin in June, 1996, and design of the pipeline is almost 50% complete.

Recycled water is "smart" water because it reduces the flow of wastewater to the environment by making more water available for reuse. Now that we are in construction, it is more important than ever that you appropriate the necessary funds so that we can succeed in our efforts to make the most intelligent use of our most valuable resource, and so point the way for other urban areas throughout the country.

Thank you for the opportunity to speak to you today.

PREPARED STATEMENT OF THE VENTURA COUNTY AND VENTURA COUNTY FLOOD CONTROL DISTRICT, VENTURA, CA

The Santa Paula Creek project in Ventura County is unusual in the annals of the Corps of Engineers. It was authorized by Congress in 1948 and construction of the first phase was completed in 1974. However, after bids for the second phase had been received and a contract awarded in 1974, a preliminary injunction was issued which prevented this contract from proceeding. Subsequently, construction of the project was permanently enjoined for failure to comply with the National Environmental Policy Act.

In the ensuing years the first phase facility, which was dependent on upstream debris retention that was not constructed, has been severely damaged and has deteriorated to the point where it constitutes a hazard and could cause damages to adjacent property including the Route 126 freeway which passes over it. Although the first phase facility lies within right-of-way owned by the Ventura County Flood Control District, it has not been accepted for maintenance and remains the responsibility of the Corps.

As provided in the project cooperation agreement, the Flood Control District acquired more than 2.7 miles of right-of-way but the Corps has not fulfilled its obligations under the agreement, since the project remains to be completed.

During the almost 20 years since the project was enjoined, the Corps has attempted to develop an environmentally sensitive project, and during the past several years prepared a General Re-evaluation Report, which is now complete and a Record of Decision on the EIS is awaiting the Chief of Engineers' signature. The recommended project is more environmentally compatible and, based on comments received to date, appears to be acceptable to all interests.

Because of the dismal condition of the first phase facility, it is essential that construction of the project be re-initiated at the earliest possible date. Accordingly, $2.7 million was appropriated for FY 1996. This will enable the Corps to commence replacement of the deteriorated first phase facility with a new facility consistent with overall project recommended in the General Re-evaluation Report. It is our understanding that the Corps will begin physical construction in FY 1996, and needs $4.2 million to continue construction.

It has been determined that the proposed recommended plan being considered in the General Re-evaluation Report can be pursued under the existing project authorization, and that the existing project agreement with the Ventura County Flood Control District can apply with minor modifications. The injunction against further construction is being addressed in the new EIS and, based on coordination to date, no controversy is anticipated.

As mentioned earlier, the existing first phase facility poses a hazard. This was acknowledged as long ago as February, 1990 in a letter from the Commanding Officer, South Pacific Division of the Corps to the Chief of Engineers in which he stated, "I was appalled by the presently deteriorated and unsafe condition of the channel. It was clear to me that the partially constructed concrete channel, damaged by the recent floods and the present build-up of debris and sediment in the channel, poses a threat of flooding that may result in loss of human life and destruction of property." Conditions today are even worse, and demand expeditious action.

Finally, as an indicator of the importance of completing this project to the City of Santa Paula, the following figures are pertinent. About 4000 homes are located, and about 13,000 people live, in the flood plain mapped by the Federal Emergency Management Agency. This flood plain also includes the entire downtown area, the City's historic neighborhoods, and five of seven schools in the elementary school district. Completion of the project recommended in the General Re-evaluation Report will lift the flood threat and the flood insurance premium burden from all of these people and properties.

We sincerely appreciate the committee's consideration of our request.

MISCELLANEOUS STATEMENTS RELATED TO CORPS OF ENGINEER AND BUREAU OF RECLAMATION PROGRAMS

LETTER FROM CYRUS M. JOLLIVETTE, VICE PRESIDENT, GOV'T RELATIONS, UNIVERSITY OF MIAMI

March 27, 1996

Honorable Pete V. Domenici, Chairman
Subcommittee on Energy & Water
131 Dirksen Senate Office Bldg.
Washington, D.C. 20510

Dear Mr. Chairman:

Please accept the enclosed testimony from Dr. Mark Harwell, Director of the Center for Marine and Environmental Analyzes at the University of Miami's Rosenstiel School, concerning the Corps of Engineers Aquatic Plant Control program.

The University of Miami's Rosenstiel School of Marine and Atmospheric Science has entered a multi-year contract with the U.S. Army Corp of Engineers to develop new experimental and modeling capabilities to understand aquatic ecosystems, and to design ecosystem management approaches that restore and protect South Florida's endangered everglades and other coastal aquatic ecosystems. As part of this effort, the University is also developing a new curriculum to train graduate students in environmental science and policy studies relevant to large aquatic ecosystems.

The University of Miami is seeking FY 1997 funding for the continuation of its aquatic plant research program.

If you have any questions, please contact me at the University of Miami, (305) 284-2360.

PREPARED STATEMENT OF MARK A. HARWELL, THE UNIVERSITY OF MIAMI'S CENTER FOR MARINE AND ENVIRONMENTAL ANALYSES

The University of Miami's Center for Marine and Environmental Analyses (CMEA), at the Rosenstiel School of Marine and Atmospheric Science, is conducting research under contract with the US Army Corps of Engineers (ACOE) Waterways Experiment Station (WES) at Vicksburg, Mississippi, and in support of the Ecosystem Restoration activities of the Jacksonville, Florida ACOE district office. CMEA has considerable experience in ecological risk assessment and ecosystem management; ecological modeling at community, ecosystem, and landscape levels; development of microcosms to simulate coastal ecosystems; and the ecology of South Florida, including coastal linkages to the terrestrial environment and human activities. This research capability, in cooperation with other universities, including especially minority institutions in the region, is being brought to bear on many environmental issues of concern to ACOE, particularly its aquatic plant and other environmental programs of WES. The objectives are to:

- Provide an ecological risk assessment and ecosystem management framework in support of management at the ACOE/WES;

- Apply modeling, experimental, and field expertise to studies of estuarine ecosystems; and

- Advance the understanding of freshwater, marine, and coastal aquatic ecosystems in relation to human activities, with particular attention to South Florida.

CMEA capabilities in ecological modeling are directed at estuarine systems through research to construct, parameterize, and validate models using data from field and experimental studies. The historical emphasis in the WES aquatic plant research program has been freshwater systems, but the Corps also has responsibilities for coastal and estuarine waters affected by Corps activities. Thus an important new element that the University brings to the ACOE aquatic plant program is this extensive expertise in coastal and estuarine ecosystems. As a consequence, the University of Miami has initiated new research on these systems, including the development of ecological simulation models and the new microcosm facilities for experimental research at the Rosenstiel School of Marine and Atmospheric Science.

Emphasis is placed on a South Florida regional ecosystem case study, as the Corps has particular responsibilities for the health of the South Florida aquatic environment through its system of water management structures. The COE-developed Central and South Florida Project is a system of canals and other water-management systems that fundamentally control the surface water regime for the entire region. The stringently peer-reviewed research funded under this agreement will help in the maintenance of the fishing and tourism industries, which are major components of South Florida's economy, and will help expand the Corps' existing scientific focus on freshwater plants to the associated coastal and estuarine ecosystems.

CMEA research will:

- Advance the scientific understanding for evaluating the health of the coastal ecosystems of the region and their relationship to management decision making;

- Assist ACOE in the broad application of the framework of ecological risk assessment, a newly developed approach for assessing human-caused risks to the environment that can address multiple stressors and diverse ecological endpoints in assessing environmental risks; and

- Assist ACOE in the broad application of the framework for ecosystem management, a new approach to examining systematically the relationships among ecological stressors, ecological conditions, human activities, and ecological sustainability.

The South Florida environment is a case study for several federal activities on ecosystem management as an interdisciplinary, interagency, and regional-scale activity. The Corps has direct responsibilities for the health of the South Florida environment, through its mandate for flood control, freshwater supplies, and protection of natural resources. The nature of the Corps' water control system and the manner in which it is managed directly affect the coastal and estuarine waters of South Florida, including salinity, nutrient, and other physical factors. CMEA scientists are building models of aquatic macrophyte-plankton-water column interactions that will be directly usable for evaluating the aquatic plants of the South Florida region and their relationship to the Corps' engineered system.

The University of Miami is the coordinating unit for the US Man and the Biosphere (US MAB) core project on ecological sustainability for South Florida, managed through CMEA. This project is at the leading edge of issues of human/environment interfaces and methodologies for bringing policy-relevant science to bear on ecosystem management issues. CMEA researchers are also major participants in the creation of a new ecological risk assessment/risk management paradigm being developed under auspices of the US Environmental Protection Agency. Both of these perspectives are merging into new concepts for ecosystem management. This policy-relevant, risk assessment framework is adaptable to the overall ACOE program, and we are working cooperatively with the ACOE scientists and managers in implementing this perspective for the aquatic plant program.

The major research themes for this project are being addressed through a series of research elements, including:

Estuarine plant community dynamics:

- development of process-level models of community and ecosystem dynamics;
- development of microcosms and mesocosms for experimental manipulations;
- implementation of field research activities;
- modeling—seagrass ecosystem models, hard-bottom community models.

Habitat-fish and invertebrate community dynamics

- relationship of animal populations with habitat quality.

South Florida regional ecosystem

- landscape modeling of the regional coastal environment.

Decision-support system

Conceptual

- ecological risk assessment;
- ecological sustainability;
- ecosystem management.

Many of the researchers for the tasks are faculty and staff at the Rosenstiel School of Marine and Atmospheric Science, but much of the research is being accomplished through networks that have already been established throughout the U.S. of researchers in academia and government agencies (e.g., for ecorisk and ecological sustainability research) or are being established to ensure the necessary expertise is brought to bear on the research themes. Extensive contacts with minority institutions in Florida are leading to subcontracts for research and other cooperative activities. Particular attention is being addressed to graduate research opportunities during this project so that newly developed techniques and perspectives will be inculcated in the next generation tasked with ecosystem sustainability.

Continued support is sought for this important research agenda, with particular emphasis on expanding collaboration and outreach through the University of Miami to minority educational institutions in the region. Only through consistently funded, long-term regional partnerships can the problems of ecosystem management and ecological sustainability be addressed to maximize the potential for future generations to enjoy economic prosperity and unique natural resources such as the Everglades.

PREPARED STATEMENT OF MAX PETERSON, EXECUTIVE VICE PRESIDENT, INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES

Mr. Chairman I appreciate the opportunity to testify today on behalf of the International Association of Fish and Wildlife Agencies.

The Association, founded in 1902, is a quasi-governmental organization of public agencies charged with the protection and management of North America's fish and wildlife resources. The Association's governmental members include the fish and wildlife agencies of the states, provinces, and federal governments of the U.S., Canada, and Mexico. All 50 states are members. The Association has been a key organization in promoting sound resource management and strengthening federal, state, and private cooperation in protecting and managing fish and wildlife and their habitats in the public interest. I appreciate the opportunity to share our perspectives with you today.

Recognizing that the President's FY 1997 budget has just been submitted to Congress, Mr. Chairman, our comments will be somewhat general regarding areas of concern to the Association. We respectfully request the opportunity to provide written supplemental recommendations on each of the agencies' budget once we complete our review and analysis.

U.S. ARMY CORPS OF ENGINEERS

The Association appreciates the recent appropriations actions of this subcommittee for the U.S. Amy Corps of Engineers which have substantially directed the Corps towards more responsible and responsive conservation of our natural resources. The Association applauds the fact that many of our recommendations for recent fiscal years have been incorporated by the Corps in their succeeding year's budget request, or are underway utilizing existing funding.

Our Association particularly appreciates the leadership of this Committee in providing funding for mitigation projects. Most project plans include fish and wildlife as part of the project costs and benefits and as such represent an agreement as to how the project will be developed and operated. Recently, this Committee has followed through by funding some of the promised mitigation. For example, we support the continued mitigation, including riparian restoration, related to the Tennessee-Tombigbee Waterway. We recommend that the Congress explore the need for generic legislative direction to the Corps to ensure that the older projects include the authority for fish and wildlife mitigation and enhancement, and if legislation is necessary, to act on that need.

We support the trend for increased funding of Section 1135 environmental projects. The Association would like to see less limitation on the type of fish and wildlife projects that are eligible for funding under Section 1135. Also, the amount of planning and engineering that has been required on some of these projects makes them cost-prohibitive for states to participate as a cost-share partner. Also, we ask that the Corps allow in-kind match toward the 25% share of the project cost.

The Association is also generally supportive of the funding requested for some of the large river restoration projects such as those planned for the Kissimmee River, Columbia River and the Upper Mississippi. It is in the best interest of the country to restore the habitat and hydrologic components on these rivers that have been significantly altered under previous projects.

The U.S. Fish and Wildlife Service has announced plans to divest its ownership of several fish hatcheries around the nation. This is of concern to us because in many cases hatcheries were included as mitigation for substantial alteration of the stream flow and changed temperatures and consequently made propagation of the native stream fish infeasible. We believe that the continued operation and maintenance of such hatcheries is a continuing project cost that should be borne by project beneficiaries. In some cases, State fish and wildlife agencies are likely to take over maintenance and operations of some of these hatcheries as they have done in the past. Some federal hatcheries are on federal lands managed by the Corps. States will need fee title to the lands and structures on the hatchery grounds in order to make the required continuing investments. In some states fee title is necessary to make such capital investments. We ask that the Corps take necessary steps to transfer these particular lands to the states. This will enable some states to assume responsibility for maintenance and operation of hatcheries.

With regard to the Corps' regulatory authority under the Clean Water Act of 1972, we strongly support the implementation of a streamlined program to process, review, issue permits and provide an appeals procedure for the permitting of activities in waters of the United States, including wetlands associated permits and jurisdictional determinations as well as sand and gravel dredging activities. The Association believes a strong partnership program with state agencies affords the best opportunity for balanced conservation of aquatic resources.

The Association urges continued appropriations for assisting in the control of zebra mussels. As you are aware, these non-indigenous mollusks are having significant adverse effects on native shellfish and natural habitats.

The Association recommends that the Corps continue in partnership with State Fish and Wildlife Agencies to initiate applicable restoration, mitigation and conservation projects. For example, we request the Corps continue to participate in the North American Waterfowl Management Plan through wetlands conservation, wetlands identification, and wetlands acquisition.

The Association recommends that the Corps continue to work closely with the State fish and wildlife agencies to identify priority restoration, mitigation and remediation projects needing the Corps' attention. The State fish and wildlife agencies are generally aware of where Corps projects could most effectively enhance the status of fish and wildlife resources through improvements to habitat. In particular, we encourage the Corps to participate in funding projects to meet the objectives of the North American Waterfowl Management Plan.

TENNESSEE VALLEY AUTHORITY (TVA)

The Association recommends that TVA actively support and participate in the States' Clean Stream Initiative with the Office of Surface Mining (OSM) to complete projects in the TVA service area. These state-Federal-private cooperative projects are engaged in restoring fish, aquatic life, recreational and economic opportunity in watersheds damaged by acid mine drainage from past coal mining activities.

The Association recognizes the importance of boating, fishing, camping, hunting, wildlife observation, and other conservation-oriented activities at Land Between the Lakes (LBL) and support continued funding for these activities.

The Association commends TVA for focusing on a coordinated effort with the States to provide public access and boat launch facilities. Tourism associated with TVA facilities is essential to the economic well being of adjacent communities and we strongly support sustained funding for these activities.

We are encouraged that TVA has undertaken a serious review of public lands along TVA reservoirs and rivers to insure these properties are not utilized in such a manner as to exclude reasonable public use. Further, we support current and future planning efforts that insure conservation and protection of riparian habitat.

The Association was disappointed that the Challenge Cost share program initiated in FY 95 was not included in the FY 96 request. Program success in 1995 was evident as matching funds were found at a ratio of 3:1 and may worthwhile projects were initiated. The Association, in recognition of these fiscally difficult times, recommends that the TVA re-institute the challenge cost program within available funds and emphasize cooperative access development and boat launch construction.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

The Association recommends a Congressional appropriation to allow FERC to reimburse state fish and wildlife agencies for studies and reviews associated with hydropower relicensing activities. Section 1701 of the Federal Power Act was amended in 1992 specifically to authorize reimbursement to states for this work. FERC has never sought appropriated funds for this purpose. If appropriated funds cannot be provided, FERC should be instructed to require reimbursement for this work by the licensee. Otherwise, projects will be proposed for relicensing without adequate studies of appropriate fish and wildlife licensing requirements. This invites conflict and possibly more stringent requirements, including water releases, than would be needed if more adequate studies were made.

BUREAU OF RECLAMATION

The Association recognizes with appreciation the continued BOR shift toward non-structural water resources management objectives. The enhanced water conservation, reclamation and partnership themes of last year's budget request certainly makes sense in the climate of the times. The Association notes with particular appreciation the number of projects specifically designed to enhance and restore fish and wildlife resources associated with BOR holdings.

Water Conservation and Reuse - BOR has recently requested funding for new water management and conservation activities. This request for added funding for these activities, funds made available largely through reductions in other more traditional activities, is supported by the Association. Among the types of work proposed are improvements in Colorado River operations, including new approaches to water salinity control; irrigation management improvements; and water reclamation and reuse projects in California. Water conservation is a "winner" for the entire spectrum of water uses and can significantly reduce conflict in water shortage situations.

Central Valley Projects - It is most appropriate, and strongly supported by the Association that the BOR continue to use significant funds from the Central Valley Project Restoration Fund for much needed and overdue actions to benefit conservation efforts associated with the Central Valley Project. The habitat restoration and improvement, screening of inlets, and acquisition of water for refuge resources, and the continued work on the water temperature control capabilities at Shasta Dam will help restore fish and wildlife resources that have been adversely impacted by this project. This is another example of project changes that reduce the impact on fish and wildlife resources, without adverse effect on other project users.

Columbia/Snake River Salmon Recovery Project - While it is truly unfortunate that steps to remedy fish passage problems in these rivers necessitated a jeopardy biological opinion, it is recognized with appreciation that the FY 96 BOR budget included funding for water to provide flows to enhance downstream migration of young fish. We would urge a comparable funding consideration in the FY 97 budget. Adequate and safe conveyance capability for young fish is absolutely essential to restoring salmon populations and it is doubtful that current restoration efforts will be successful without reliable solutions to this long standing problem.

Water Development - In past years, the Association has urged the BOR to become a more active participant in wetlands projects and continue to advocate that position. Wetland conservation, restoration and protection are key ingredients to the success of the North American Waterfowl Management Plan and the Partners in Flight initiative. We were disappointed that BOR decreased its request in FY 96 for Wetlands Development, and urge the agency to request a budget for wetlands development comparable to FY 95 appropriated levels. Very small efforts at some bureau projects would have very high payoffs.

PREPARED STATEMENT OF THE INTERNATIONAL FEDERATION OF PROFESSIONAL AND TECHNICAL ENGINEERS, LOCAL 777, CHICAGO, IL

SUMMARY: Local 777 of the International Federation of Technical and Professional Engineers is proud to be a part of the Corps of Engineers and its excellent service to the Nation. We recommend that Congress repeal the requirement of Public Law 104-46 of the 1996 Energy and Water Development and Appropriations Act, for a Corps structure of six to eight Division offices, and cancel the Corps' February 7, 1996 proposed plan which was based on a one day Division Restructuring Analysis. A study to create a national engineering organization that can manage the rapidly increasing Civil Works infrastructure, environmental issues, and the declining military workload will better serve the nation than the Corps' covert attempts to design an organization concerned only with the placement of military officers based on the military workload. The Corps has a disastrous track record for its five years of attempted reorganizing, restructuring, and downsizing of the Corps. Those efforts, led by HQUSACE and the ASA's office, have all failed under intense political scrutiny. However, the Corps continues to ignore congressional guidance, perpetuates a top heavy Washington office, ignores its own reorganization criteria and staff recommendations, refuses to power down authorities to the division level, fails to consider customers and the Corps future workload, and attempts to convince Congress that districts will not be affected. Organizations, like buildings, are built from the foundation up. The Corps is constructing its organization from the top down. The result is that the top of the organization will have 2400 employees, the division level will shrink to approximately 800, and the districts will have the bulk of the employees, approximately 30,000. USACE has concentrated their efforts on downsizing the divisions to conceal their own fat, and is hoping that customers won't realize that districts will be radically restructured by the division commanders. Large savings can't be found in the smallest group (Divisions), so large changes must be planned for the districts. The Corps has been ordered not to close any district office. But, just because a city has a remaining district office doesn't mean it will be staffed to provide the same service customers receive now. To insure that the Corps restructuring effort is customer based, it must first determine the number, size and location of districts needed to serve its customers. Then determine the number, size and location of the divisions offices. The final restructuring step would be the reduction in size of the HQUSACE staff.

Previous Corps Reorganization Efforts: For several years, the Corps has been actively analyzing itself, attempting to reorganize into a new, efficient organization for the future. The driving forces for this constant self-examination were expected reductions in future appropriations, congressional and administration directives to do more with less, and the reduction in military workload to support the Army and Department of Defense. Since 1991, the Corps Headquarters has directed at least ten task forces to analyze different aspects of the organization. They have run the gamut from smaller elements such as Division laboratories, to the big picture of the Corps' future missions.

In the 1991 Bayley Report, the Corps concentrated on closing selected Division and District Offices, without due consideration to the Corps future missions, business processes, and customer needs. This plan was quickly killed by Congress.

In 1992, the Genetti task force plan called for closure of selected division offices, organization structural changes including functional elimination of engineering and planning in selected district offices, and a fundamental business process change regarding technical and policy review. The Task Force was made up of members from districts, divisions and HQUSACE so all levels had input into the study. One of the outputs of the group was the development of criteria to be used in rating the current divisions to determine the best location for the offices. Apparently, the use of the criteria would have resulted in a different outcome than the Corps' predetermined desires, so some of the results were manipulated or ignored. Another decision that came from this same group was the idea that the districts would perform technical review and USACE would conduct policy review. This was also a predetermined decision because the chairman of the committee had proposed the concept a year before, when he chaired a NCD task force. In making this decision, the Corps failed to consider the grave doubts of its own experienced professionals and independent entities like the American Society of Civil Engineers. The Corps' action places individuals' lives and property at risk by allowing the same group that conducts the study, to review and approve it. The failure of the Teton Dam and the Space Shuttle are examples of letting the "fox guard the henhouse."

Corps' Reorganization Issues: The Corps has ignored Congress. Conference Report 103-672 to the Energy and Water Resources Development Appropriations Act of 1995 directed the Corps to establish a single level of review for policy and technical issues above the district level. The Corps promptly delegated technical review of its products to districts, and lifted policy review to headquarters. The Corps powered up to headquarters, and empowered its districts with a significant new responsibility, without providing them the necessary resources for performance.

The Corps failed to consult with unions, customers and cost-share partners and failed to consider the impact of reorganization on minorities and female employees.

The Corps manipulated or ignored criteria they established regarding cost effectiveness, performance, locating offices in transportation hubs, educational opportunities of the area, and the educational base to draw upon future employees and leaders. They also failed to comply with the requirement to locate regional (division) offices in Standard Federal Regional Centers.

The Corps Abandons Reorganization and Tries Restructuring: Since November 1992, the Corps has formed task forces to accomplish the following:

Study the roles of the ASA, Headquarters, Divisions, and Districts and developed a roles matrix.

Develop a plan for activities of the Division laboratories.

Develop an 800 page report on restructuring the HQUSACE functions in Washington. The report resulted in the elimination of a few vacant Washington level positions but 2400 positions remain.

Study technical review, which is the business process that ensures cost-effective, quality designs. Instead of empowering the divisions with study approval authority and simplifying the review process, the top level of the organization powered up, assuming broad authorities. The districts were given the authority to do their own technical review. However, they did not receive the additional budget or manpower to accomplish the critical new responsibilities. The divisions would perform Quality Assurance, once it was identified.

Develop a Division Restructuring plan. The membership of the Division Restructuring Task Force expressed concerns over the attempt to split policy and technical review between headquarters and districts. Their concerns that the removal of independent technical review would affect the quality, cost effectiveness, and safety of the Civil Works program, as overloaded district personnel conducted in-house technical review of their own projects, were ignored.

Perform a Mission Review, to study and evaluate the Corps' future missions in light of administration budget cutting directives. This review of Corps' Civil Works missions began in the spring of 1995 after intense political pressure to find cuts to balance the federal budget.

Develop District Restructuring Guidelines. The result was a 72 page set of broad guidelines by which a division commander may reorganize the districts under his command. Finally, in the fall and winter of 1995, the Corps addressed the bulk of its organization, where in excess of 30,000 of the approximately 35,000 strong Corps workforce are employed.

Identify the Quality Assurance role of divisions and the districts Quality Control duties. After delegation of technical review to district offices, policy review to Washington headquarters, and defining divisions as quality assurance and command and control centers, the Corps decided to form a task force to find out how to do all these things, and to give direction to the field. This task force was formed after implementation of all the business process changes was ordered to begin.

What is Wrong with the Corps' Restructuring Efforts? The first and most intensive restructuring attempt the Corp made was of their Headquarters office which is the least involved in putting a completed project in the field. Instead of creating a blueprint for the 21st century and determining what the Corps should do for a living, what their customers want, and how to manage a different type of workload, the Corps efforts concentrated on organizational structure and reducing personnel in the face of expected future budget cuts.

The Corps senior leadership ignored the input of task force members when it didn't fit the predetermined results. The Corps' method of restructuring was to come up with an answer, form a task force to verify the answer, order implementation, then figure out how to do it!

The Corps paid lip service to Union Partnership by claiming that union members selected by Management, for task force memberships, equaled union representation.

Congressional Guidance: Public Law 104-46 of the 1996 Energy and Water Development Appropriations Act calls for the Corps to submit a plan reducing the number of Division offices to 6 or 8, each with at least four districts. The congressional direction occurred just after the Corps restructured Division offices, reduced their personnel, and changed their roles and responsibilities based on the Division Restructuring Task Force Report. In response to the Public Law, the Secretary of the Army provided guidance to the Corps. Lt. General Williams developed the subjective division proposal in one day.

The criteria used to justify closure of the North Central Division in Chicago (NCD), and dividing its five districts between Omaha (MRD) and Cincinnati (ORD), are geography, watersheds, customer service, and minimal work disruptions and people relocations.

Application of Criteria: Geography: NCD sits astride two world-renowned watersheds, the Upper Mississippi River Basin and the Great Lakes Basin. Chicago became a great city in large part due to its geographical proximity to these two watersheds. There are over 580 miles of Mississippi River that border the State of Illinois, by far the largest distance of pooled river for inland navigation for any Upper Mississippi River state. Also, the Illinois Waterway, entirely within Illinois, handled 50-60% of the Illinois and Mississippi River's commerce above Lock and Dam 26 in 1992. The Soo Locks on the St. Mary's River in Michigan typically exceeds 80 million tons in commercial navigation each year. Geographical proximity to the customers and the Civil Works missions is obviously in Chicago, centrally located between two great natural water resources.

Watersheds: Splitting three NCD districts to join the Ohio River Division does not consist of a logical grouping of watersheds. The Great Lakes and the Ohio River Basin do not possess the same relationship as the Great Lakes and Upper Mississippi River.

Customer Service: ORD has never been a division with lakes responsibilities. Chicago District customers will be confused. Because it is located on Lake Michigan, it will be reorganized under ORD. But, most of its territory exists in the Mississippi River Basin, the rest of which is controlled by MRD. The Missouri River and Upper Mississippi River Basins are linked, but the primary customers of: navigation interests; commodity suppliers; farmers; and natural resource suppliers use the Illinois Waterway and Upper Mississippi River, not the Missouri River. Chicago is the center of the population in the Midwest, the ultimate customer. Both Cincinnati and Omaha are far removed from the majority of the population and majority of the civil works navigation transportation. The Division office should be located in Illinois, where the majority of the customers are. Another customer group serviced by the Corps are other federal agencies. Because NCD is in a Federal Regional Center, it has access to other regional agencies which ORD and MRD do not have.

Minimize Disruption: Closing the North Central Division requires the reassignment of 11 offices to report to new commands. Five of these 11 offices come from the North Central part of the United States. St. Paul, Rock Island, and the St. Louis Districts are responsible for the largest part of the Mississippi River Basin. MRD would need to be brought up to speed on commercial navigation issues. ORD would inherit new duties of deep draft navigation, coastal engineering, and international water resources management on the Great Lakes. These drastic changes to their responsibilities do not consist of minimal work disruptions. NCD just lost 40 positions due to a transfer of Illinois located military work. MRD, on the other hand, is gaining 122 positions due to the same military workload shift. The Omaha District would be able to absorb most of the displaced MRD employees. The Chicago District cannot do the same for the displaced NCD staff. Not only does closing NCD cause a large disruption to employees, the need to relocate employees will be costly. NCD is the only unionized office being closed, this raises additional questions regarding the Corps "Partnership" efforts. NCD is comprised of more than 30% minorities, ORD about 20%, and MRD about 7%. Therefore, the decision to close NCD has a greater impact to minorities.

An undiscussed criteria of the Corps reorganization efforts is military workload. The Corps has been trying to manage civil works efforts at the same time they justify military officers slots based on military workload. Military work has been removed from NCD and the Great Lakes Regions of the country. This shift has locked the senior military leadership mind against the reality of an increasing civil workload to restore deteriorating infrastructure. The nation's Civil Works requirements may be better served by transferring it from the military to a government body which considers Civil Works a priority.

No consideration was given to efficiency or economy. NCD has colocated functions with the Chicago District. These actions reduced manpower needs and overhead costs, while NCD remained one of only two divisions that received fully satisfactory performance reviews. Our reward should not be closure.

Conclusions: The Corps has not learned from their past efforts. They continue to ignore: the Executive Order on locating in a Regional Center; the Civil Rights Act prohibiting arbitrary actions without consideration of minority impacts and organizational concepts like reducing overhead costs, rewarding performance and initiative, listening to employee and customer input. They continue to bend or ignore Congressional guidance to conceal their true intentions.

To end the demoralizing effects of years of Corps study efforts, we request that the requirement of Public Law 104-46 be lifted. To insure that the nation's needs and safety are protected, we also request that an independent group be commissioned to study both the concept of district technical review performance, and to determine the organizational requirements for the districts, divisions, and HQUSACE. If the committee wishes that the intent of Public Law 104-46 be pursued, we request that a rational, objective analysis, supported by more than a one day, one man study be completed.

PREPARED STATEMENT OF THE INTERNATIONAL FEDERATION OF PROFESSIONAL AND TECHNICAL ENGINEERS, LOCAL 49, SAN FRANCISCO, CA

Support for Corps Missions: First, all the Corps missions provide economic benefits for the entire nation and that all regions of the country should be afforded the economic, safety and other benefits of Corps projects on an equal basis.

Corps civil works projects, including navigation and beach protection projects, have a net positive return on investment for the taxpayer dollar. Not all agencies can say that about their projects. If the Corps abandons any of its responsibilities, the nation will be left without national technical expertise and water resources development will become either lacking entirely or piecemeal, uncoordinated and uneconomic. The result will be economic losses to the people in all states. The argument that ASA(CW) Lancaster made during hearings in the House(*) for reducing the federal involvement in harbor projects, namely that these projects generate significant local benefits, sounds like an argument to preserve federal involvement in this area, not abandon it. Remember that all project benefits are "local" and all Corps projects produce more in benefits than they cost.

Moreover, since Corps technical experts who support the various missions also support the emergency response mission as a collateral assignment, the loss of those missions would mean a reduction in the ability of the Corps to respond to natural disasters.

Reviews: Next, I would like to discuss the subject of how the Corps has reassigned review functions between its organizational levels, part of what the Corps calls "restructuring". The scheme implemented last October will mean the end of the Corps as a first-rate engineering organization while, ironically, adding to the overall cost of producing projects. Specifically, the Corps eliminated the independent review function from the regional Divisions and assigned sole "technical" review authority to the local Districts. In addition, the Corps Headquarters assigned to itself the authority to provide another parallel review of those same project documents, that review being called a "policy" review. That awkward, split review scheme will mean the end of technically effective and cost-efficient reviews, and with the death of reviews goes the assurance of safe and high quality projects.

Before I go further, let me emphasize that my criticism of the project review scheme does not mean that anyone believes that the Districts are technically incompetent. Far from it. Some of the most technically competent, hard working and most dedicated people in government or industry are in Corps of Engineers Districts. My criticism is directed at an institutional failure not of the District's making, namely the segmentation, complication and confusion of what should have been an orderly review process. Having said that, let me say that the Corps has ignored much good advice and is in trouble for that.

The Corps failed to heed this Committee when it told the Corps, in the Conference Report 103-672 to the Energy and Water Development Appropriation Act of 1995, to establish a *single* level of review for "policy" and "technical" questions *above the District level*. Congress got it right but the Corps chose to ignore that direction (and good technical advice) and instead established the "one stop" review process that LTG Williams mentioned in his 21 March 1996 testimony to the House Subcommittee on Energy and Water Development, Committee on Appropriations. That "one stop" process he mentioned has one "one stop" in the Districts and the other "one stop" in Headquarters. That is not a "single level" of review and half of it is not above the District office level.

In a time of shrinking resources, one cannot make sense of a process with review groups at multiple levels, each plowing through the same review materials. The Districts do a "technical" review, the Divisions do an ill-defined "quality assurance" check of the Districts, the Headquarters does a "policy" review, and the Assistant Secretary of the Army (Civil Works) does a "quality assurance" review of the Headquarters. Those four levels of review are especially wasteful because all those reviewers require essentially identical knowledge and experience. The Corps needs to stop trying to do everything at every level.

(*)Assistant Secretary of the Army (Civil Works) Lancaster before the Subcommittee on Energy and Water Development, Committee on Appropriations on 21 MArch 1996: "Regarding maintenance of recreations harbors, the Administration believes these projects generate significant regional and local benefits and that users can reasonably be expected to finance the required maintenance."

The new review scheme is contrary to the views of the two previous chairmen of the House Public Works and Transportation Committee and to the local sponsors who advised the Corps to place engineering services and project development authority near customers. The review scheme is also contrary to the policy of the American Society of Civil Engineers that an independent review, such as that provided by the Divisions, is a requirement when many lives may be at stake. Many people in the Corps, including senior engineers at the highest level, have doubts about the workability of the awkward, dual review plan.

The Corps estimates that only 75 to 80 personnel spaces can be eliminated nationwide from Divisions by transferring Division technical responsibilities to the Districts. This is only about two reviewers per District, far too small a staff for a capable, multi-discipline review. Since the Corps has forbidden Districts to create separate review organizations, people added to perform the added review function can not easily be identified and counted. But the total number of people doing technical reviews will increase when Districts perform individual reviews from the previous situation in which a Division provided consolidated reviews for their several Districts. Some Districts have already requested added funds and added time to plan for and conduct the reviews of civil works projects that Divisions once performed.

After Division reviews of military projects were eliminated several years ago, costs of corrective contract modifications during construction jumped. Clearly, it is cheaper to correct errors on paper than disrupt contractor's construction schedules and rework construction already in place. Reviews are not free no matter where they are done but Division reviews have been shown to save more money than they cost.

The Corps task force on Division reorganization said that the recommended Division staff and mission cuts will cause "technical competence ... to be undermined at the expense of product quality" and that the staff spaces in Divisions have a high "value added" compared to their number. How does the Corps explain to the people protected by our projects that the project, while it may *appear* to be cheaper, it may be more expensive overall, certainly more expensive for sponsors, while at the same time, it is lower in quality and less safe? What would our sponsor-partners say, if given a choice?

The Corps task force on defining the new technical review process concluded that Headquarters should conduct only very broad "policy" reviews limited to project purpose, cost sharing and budget criteria. Those reviews would focus on concepts and underlying assumptions and not how analyses were done, how data was collected and similar questions. The task force identified the "technical" topics that are within the exclusive purview of the Districts to be such items as verifying alternatives evaluated, verifying appropriateness of data and verifying analytical methods. Headquarters appeared to implement the task force recommendations but, in fact, Headquarters rejected the task force's narrow definition of the Headquarters role and claimed rights to those same "technical" topics, defining them instead as "policy" questions suitable for a Washington review. Many Headquarters jobs have historically depended on Headquarters involvement in those types of questions, including checking such minutia as interest calculations as a "policy" item.

Besides a loss in quality, there is a loss of communications with Corps local sponsors if the locus of all decision making is moved to Washington. The influence of a local sponsor over the progress of one of their projects would be greater with their project being reviewed and approved by an accessible regional Division office which is more familiar with the customer's needs and desires (i.e., are more familiar with the social, environmental and technical requirements of the region) than with their project lost in the pile of projects from three dozen other Districts in Washington two or three organizational levels above and hundreds or perhaps thousands of miles farther away.

On 21 March 1996, LTG Art Williams testified before the House Subcommittee on Energy and Water Development, Committee on Appropriations that FY97 civil works staffing for the Corps is 27,201 FTEs. He went on to say that 5% of that is allocated to Division offices and 2% to Headquarters. Doing the math, Divisions would be 27201 x 5% = 1360 FTEs, not including

FTEs for military and support for others. But ASA(CW) Lancaster testified to the same Subcommittee that the Division offices will be reduced to eight offices by then and since Divisions already have about 100 people each, the total should be about 800 total Division people including military and support for others. Divisions then are less than 2.9% of the Corps, not 5%. In addition, the lumping of all the Ft. Belvoir agencies into the "laboratory and field operating agency" category confuses the staff size issue because many people in those Washington-based FOAs perform Headquarters-type work. For example, the Washington-level "policy" reviews are still done at Ft. Belvoir. In this regard, there have been recent transfers of functions and people between the Pulaski Building and Ft. Belvoir that confirm that what is commonly called "Headquarters" has an elastic and permeable boundary that shifts to keep jobs in Headquarters without appearing to do so. The result of correctly counting the people in the National Capital Region who do headquarters-type work and counting the people in the "real" Divisions (not name-only Divisions) would be to nearly reverse the 5% Division to 2% Headquarters ratio to which LTG Williams testified. Washington-level Corps staff have not experienced the level of downsizing and cuts that the rest of the Corps is experiencing(*).

(If the Corps had downsized its headquarters proportionate with the Bureau of Reclamation, there would be about 350 people in Washington to oversee the Corps, not the 2400 currently there.) Since Divisions and Headquarters both funded from the same General Expenses account, every Division job cut, no matter how productive, is a Headquarters job saved.

But there is an accessible alternative to the present scheme with all its Washington-based top-heaviness, namely the "Section 14 Solution" that LTG Williams mentioned in his House testimony. When Headquarters delegated the review and approval authority for Section 14 continuing authority projects to the Divisions, project development times dropped from three and one half years to only one year, according to the Corps employee newspaper. That decrease shows that a single combined review done at one time at one place in the Division is simple, speedy, easily understood, technically effective and eminently workable. The 20% time savings that LTG Williams mentioned in his House testimony considerably understates the benefits of delegation (i.e., getting Headquarters out of the loop). Doing the math, 3.5 years reduced to 1.0 years is about a 71% reduction, not a 20% reduction. The only way to achieve these time and money savings on other programs may be a direct limitation on the functions and size of the Washington-based staff and combining "technical" and "policy" reviews into one review in the regional Divisions. This could be achieved by reducing the funding allocated for Headquarters operations and forcing the delegation of additional authorities.

The findings of every Corps study - and the recommendations of professional organizations - is that the new review scheme will adversely impact project development. The findings are absolutely consistent. If the Committee desires an impartial opinion on how reviews should be conducted for maximum economy, timeliness and technical effectiveness, a study by an independent agency could be performed. Several professional organizations have been suggested as being capable of performing a full study of the Corps review process and providing recommendations for you. If this Committee does nothing else on the matter of the reorganization of the Corps of Engineers but reauthorize a small amount of funds already in Corps accounts to conduct an independent study of how best to perform reviews, a great service will have been performed. The monetary payback from organizational efficiency gains will be large (e.g., Section 14) but the payback in project quality and safety will be incalculable. What is the cost of a project failure?

Summary: In summary, first, we recommend that the Committee appropriately fund the traditional Corps missions in Fiscal Year 1997 and beyond. Second, we urge the Committee to take a fresh look at the Corps and determine for itself whether the "reengineered" Corps of Engineers is headed for disaster. There is a Corps account that was set aside for Division closure under the withdrawn 1992 plan that could be reauthorized to fund an unbiased reexamination of the new review process. We urge you to include such a study in the

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(*)The October 1995 issue of the Little Rock District employee newspaper quotes Dr. John Zirschky as saying: During the Corps' reorganization, the civil works program lost 23 percent of its positions in the last few years. Overall, headquarters has only cut 14 FTE in the last five years."

legislation you are preparing. Finally, we reiterate that the Corps Headquarters "policy" reviews should be strictly limited and that Washington staffs should *develop* policy and not endlessly participate in its execution. Legislation should make that clear and explicitly state that primary "technical" and "policy" review responsibilities should rest with the regional Divisions and strictly limit or eliminate the current review functions of Headquarters.

We know that the Committee wishes to preserve the Corps as the premier provider of engineering services to the nation. We in the IFPTE pledge our assistance in that effort.

DEPARTMENT OF ENERGY PROGRAMS AND ACTIVITIES

PREPARED STATEMENT OF ROBERT L. MC CRORY, PROFESSOR AND DIRECTOR, LABORATORY FOR LASER ENERGETICS, UNIVERSITY OF ROCHESTER

Summary and Requested Action

The Department of Energy's (DOE) Defense Programs' strategy relies on maintaining the technology infrastructure and core competencies to insure that the U. S. nuclear deterrent is credible while contributing to the U. S. research base. The National Inertial Confinement Fusion (ICF) program plays a central role in the stockpile stewardship technology program with the threefold laboratory mission: (1) To demonstrate the ignition of small masses of thermonuclear fuel, (2) To provide access to physics regimes of interest in nuclear weapon design and to provide nuclear-weapons-related physics data, and (3) To provide an above-ground simulation capability for nuclear weapons studies and effects. With cessation of underground nuclear tests and contraction of the nuclear weapons research and development effort, ICF is a vital component of the DOE's technology-based stockpile stewardship program. A potential long-term benefit is that ICF could provide a source of environmentally acceptable and economically competitive civilian power.

The University of Rochester's Laboratory for Laser Energetics (LLE), a participant in ICF research since the 1970s, is the only ICF program that has been jointly supported by the Federal government, State government, industry, utilities, and a university. At relatively small comparative cost to the government, LLE makes contributions to the National program and transfers technology to the public and private sectors through the training of graduate students and interactions with industry and other Federal laboratories. The facility serves as a National laser users' facility benefiting scientists throughout the country. The OMEGA laser is now the highest power ultraviolet fusion laser in the world.

The Laboratory's prime mission is to validate the direct-drive option for ICF. There is a close collaboration among LLE, Lawrence Livermore National Laboratory (LLNL), and Los Alamos National Laboratory (LANL) to support the demonstration of ignition and gain in the laboratory, the objective set by the National Academy of Sciences' (NAS) review of the National program in 1990.

Reviews of the Rochester program by the NAS and the Inertial Confinement Fusion Advisory Committee (ICFAC) recommended the OMEGA Upgrade and the potential of direct drive as high priorities in the National program. The OMEGA Upgrade was successfully completed on time, on original budget ($61,000,000 total construction cost), and exceeded all acceptance test criteria (45,000 Joules of ultraviolet light—50% above the 30,000 Joule design specification!). OMEGA is the newest of Defense Programs' facilities. We take pride in having established a new neutron yield record of 100 trillion neutrons. The OMEGA Upgrade is the only facility that can demonstrate the scientific potential of direct drive to provide a modest- to high-gain energy option for the Nation. ICFAC, in its February 1996 report[2] emphasized the priority of conducting cryogenic experiments on OMEGA by FY99. The DOE-approved funding profile in the Cooperative Agreement for the LLE program, for operation of the new facility is shown in the table below.

	FY93	FY94	FY95	FY96	*FY97*
Operations	$15,590,000	$16,498,180	$17,165,770	$18,191,770	***$19,150,770***
Capital	$23,410,000	$8,700,000	$3,600,000	$1,900,000	***$2,000,000***
Total	$39,000,000	$25,198,180	$20,765,770	$20,091,770	***$21,150,770***

To provide the operations support for program deliverables and operation of the OMEGA Upgrade, and maintain the training programs at Rochester, a total authorization and appropriation of $21,150,770 ($19,150,770 for operations, and $2,000,000 for capital equipment) is requested for the University of Rochester for FY97.

Background

Thermonuclear fusion is the process by which nuclei of low atomic weights, such as hydrogen, combine to form higher atomic weight nuclei such as helium. In this process some of the mass of the original nuclei is lost and transformed to energy in the form of high-energy particles. Energy from fusion reactions is the most basic form of energy in the universe; our sun and all other stars produce energy by thermonuclear fusion reactions occurring in their interior. Fusion is also the process that provides the vast destructive power of thermonuclear weapons.

To initiate fusion reactions, the fuel must be heated to tens of millions of degrees. In stellar bodies, containment is possible because of the large gravitational force. On earth, ICF involves the heating and compression of fusion fuel by the action of intense laser or particle beam drivers. There are two approaches to ICF, direct and indirect drive: indirect drive involves the conversion of beam energy to x rays to compress a fuel capsule in an enclosure called a hohlraum; direct drive involves the direct irradiation of a spherical fuel capsule by energy from a laser and may be more efficient energetically than indirect drive. For either approach, if very extreme density and temperature conditions are produced, it is possible to produce many times more energy in these fusion reactions than the energy provided by the drivers.

Inertial Confinement Fusion Program Focus

The 1990 NAS review of the ICF program[1] identified the program priorities that were subsequently endorsed and are being pursued by the DOE. The NAS report states "*The expeditious demonstration of ignition and gain should be the highest priority of the inertial confinement fusion (ICF) program. Adequate funding toward this goal must be assured.*"

The NAS report identified the glass laser program as the best path to demonstrate ignition (initiation of a thermonuclear reaction that can be self-sustaining) and propagating thermonuclear burn. A recent independent review completed by the JASONS[3] stated "*The inertial fusion program represents the closest approach we know of to a number of critical parameters in the weapon environment...Naturally we expect continued progress in further evaluating ignition prospects from experiments on Nova and on OMEGA Upgrade, a direct-drive laser facility at the University of Rochester...*"

DOE has accepted the recommendations of the reviews, and substantial progress has been made. Encouraging results from indirectly driven targets from the NOVA facility at LLNL have been obtained. Based on these data ICFAC recommended, DOE approved, and the Congress funded proceeding with the design phase for the National Ignition Facility (NIF). The purpose of the NIF is to demonstrate ignition, propagating burn, and modest gain in the laboratory. The NIF project completion is presently projected to be 2002 if the project is funded and approved as proposed.

LLE is the primary focus in the U. S. for the direct-drive approach to ICF. The NAS report states that direct drive may ultimately prove to be the best approach to ICF and provide the most efficient path to a laboratory-scale thermonuclear capability for both energy research and defense technology needs. OMEGA is the only facility that can demonstrate the scientific potential of direct drive to provide modest- to high-gain on the NIF.

For several years an extensive collaborative program between LLNL, LANL, and LLE has provided data on basic physics, beam smoothing, and unstable hydrodynamics using available laser facilities, such as NOVA. This collaboration is continuing on the OMEGA Upgrade. The joint effort includes both nuclear weapons physics experiments and ICF experiments. This effort is a key element in the stockpile stewardship technology program. Physics issues for both ICF and weapons issues for the stockpile stewardship program fall into five broad categories: irradiation uniformity, laser energy coupling and transport, laser-plasma interaction physics, hydrodynamic stability, and hot-spot and main-fuel-layer physics. The OMEGA Upgrade and NIF programs are complementary. Figure 1 illustrates the schedule for the glass laser facilities to be used in the National program plan for inertial fusion.

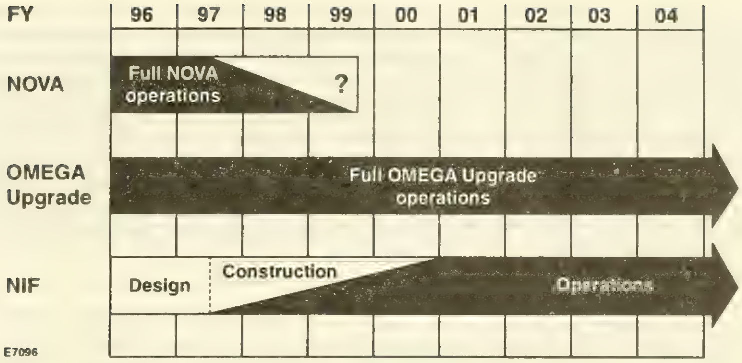

Fig. 1 Schedule for the operation of NOVA, the OMEGA Upgrade, and the NIF.

The figure illustrates how the National program has been structured to provide a full complement of mature experimental facilities from the present to the future. If the NIF adheres to DOE's present schedule, construction of NIF will result in the eventual shut down of the NOVA laser, with **OMEGA as the principal facility to continue experimental work** during the final phases of NIF construction. Although the LLE program is focused on direct drive, OMEGA is capable of indirect drive (hohlraum) experiments as well. Both LANL and LLNL presently plan to use the indirect drive capabilities of OMEGA in the future. An indirect-drive experiment will be conducted on OMEGA during the present (FY96) fiscal year.

The LLE Program for FY97

The OMEGA Upgrade system delivers 45,000 Joules of temporally shaped, ultraviolet (351 nm) light to direct-drive targets. This is the highest energy ever delivered directly to a capsule in a laser-fusion experiment. By comparison, for example, the NOVA capsules are driven with up to 3,000 Joules of energy *(* $^{1}/_{15}$*th as much as direct drive with the OMEGA facility).* The larger energy will yield critical data for ignition-size capsules. Both LANL and LLNL will collaborate with LLE on many of these experiments.

The goal of the glass laser direct-drive target physics program is to evaluate the performance of capsules near ignition conditions. In addition to providing data for the NIF, experiments can validate the direct-drive configuration on the NIF that could result in two to three times higher fusion gains (gain > 50) than those available with the baseline (indirect-drive) NIF design.

An important element of the direct-drive program on the OMEGA Upgrade is to demonstrate beam smoothing techniques that ultimately will produce on-target irradiation uniformity of 1% to 2%. The LLE-developed smoothing by spectral dispersion (SSD) approach was implemented on the OMEGA Upgrade in January of 1996 for precision direct-drive experiments to be conducted later this year. This LLE technique has been implemented on NOVA, and variants of the approach are being incorporated in the NIF design to meet the irradiation uniformity requirements of both direct- and indirect- drive targets.

The development of cryogenic fueling is necessary for the post-NOVA-technical-contract ignition optimization experiments as well as for the hydrodynamically equivalent target experiments to be conducted on the OMEGA Upgrade. In collaboration with LLNL and General Atomics, a prototype cryogenic capability to be completed in FY99 (a change from FY98 due to funding short falls) is being developed for the OMEGA Upgrade. The ICFAC recommended in their final report: "*The committee believes that experiments are essential to assessing real target performance and benchmarking code calculations. The first opportunity to do such experiments on cryogenic targets approaching NIF size will be on Omega...It is very important that this effort be kept on track with proper priority and not delayed further.*"[2] Cryogenic capability, advanced diagnostics development, and beam smoothing are all required for the NIF. The OMEGA Upgrade will be the principal National facility to develop these technologies for the program.

LLE attaches a high priority to providing education and training in the field of ICF and related areas. These include theoretical and experimental plasma physics, laser-matter interaction physics, high-energy-density physics, x-ray and atomic physics, ultrafast optoelectronics, high-power laser development and applications, nonlinear optics, optical materials, and optical fabrication technology. A total of 56 graduate students and 19 faculty members of the University of Rochester are currently involved in the unique research environment provided at LLE and represent many departments within the University, including Mechanical Engineering, the Institute of Optics, Physics and Astronomy, Electrical Engineering, and Chemical Engineering. More than 65 undergraduate students receive research experience annually at LLE. A high-school summer science program exposes ten talented students each year to the research environment and encourages them to consider careers in science and engineering. Many LLE graduates have made important scientific contributions in National laboratories, universities, and industrial research centers.

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2. Inertial Confinement Fusion Advisory Committee Report to Assistant Secretary Reis (February 21, 1996).
3. "Science Based Stockpile Stewardship." JASON Report JSR-94-345 (The MITRE Corporation, McLean, VA, November 1994).

LETTER FROM RONALD BRESLOW, AMERICAN CHEMICAL SOCIETY, WASHINGTON, DC

March 20, 1996

The Honorable Pete V. Domenici
Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

As your Subcommittee considers the FY 1997 budget for the Department of Energy's (DOE) Office of Energy Research (OER), the American Chemical Society urges you and your colleagues to adequately invest in DOE's fundamental environmental research. In the past, budget constraints in OER have prevented the full pursuit of environmental research opportunities essential for DOE's mission and other required activities.

Fundamental environmental research supported by OER programs can provide the discoveries, knowledge base, and the experienced scientists and engineers needed to address the environmental impacts of energy production and use. It can also control and clean up radioactive and hazardous waste at DOE sites, particularly those sites involved in past nuclear weapons production. If waste management and cleanup decisions are made, and actions taken, in the absence of the underlying information that research provides, these efforts will be neither efficient nor cost effective, and could result in even further contamination of the environment.

Basic environmental research is conducted at DOE's National Laboratories and in academic institutions. Support comes from **Biological and Environmental Research** (BER) and **Basic Energy Sciences** (BES) programs under the Office of Energy Research. In the process, a pool of scientists and engineers is trained with the unique expertise to address the energy and environmental concerns facing the United States today and into the future. Special DOE user facilities, such as the Environmental Molecular Sciences Laboratory, can make significant contributions. OER-supported research can improve energy efficiency and reduce pollution, thus decreasing the need for costly environmental regulations and improving economic performance as U.S. companies adapt the results of this research.

Several DOE reports (e.g., ***Basic Research Needs for Management and Disposal of DOE Wastes***, U.S. DOE Office of Energy Research, April 1991) have detailed the contributions that OER can make to the Department's environmental concerns if additional funds were available. For example, the "Galvin Report," which addressed the future of DOE National Laboratories, indicated that the laboratories and university-based research collaborators can perform the high-quality science and engineering needed for efficiently and effectively cleaning up DOE sites. In addition, such an approach may lead to the development of the scientific foundation for advances in environmental technologies. The Galvin Report suggested that monies be redirected from DOE's Environmental Management account--which funds programs that handle cleanup and waste management operations at former nuclear production and research facilities as well as technology development and other activities--to programs that fund the needed underlying fundamental environmental research in this area.

In apparent agreement, the Appropriations Conferees directed that $50 million of the Technology Development program funds (Defense Environmental Restoration and Waste Management) in FY 1996 be managed by the Office of Energy Research. The research to be funded would use the expertise at the National Laboratories and in the academic community. Planning was already underway at DOE between OER and Environmental Management (EM) to conduct fundamental environmental research of interest to EM in FY 1996 and in future years. These plans enabled the Department to recently announce a peer reviewed competition for DOE laboratories and a separate competition for the extramural research community, using $40 million of the congressionally directed monies.

Numerous awards, including Nobel Prizes and the "R&D 100" awards from ***R&D Magazine***, speak to the quality of the research funded by OER programs. Investments in fundamental research have already paid off as documented in past DOE reports such as the ***Fiscal Year 1993 Basic Energy Sciences Accomplishments***. Promising work continues:

- BES-supported researchers in the Chemistry Division at Argonne National Laboratory and at the University of Tennessee have synthesized and tested an ion exchange resin that removes a variety of metal contaminants from groundwater and mixed wastes.
- Radioactive sludges in tank wastes present clogging problems. Surface chemistry information being produced at Pacific Northwest Laboratory is helping to control this situation.
- In other OER-funded work, scientists at the University of Notre Dame have decomposed dioxins in soil using a method that is technically and economically feasible.
- At Ames Laboratory, the development of a lead-free solder eliminates exposure to hazardous lead vapors while producing a strong joint.
- BER-supported researchers at the University of Tennessee have combined a bacterial gene for luminescence, originally from glowing bacteria found on a deep sea fish, with a waste eating gene found in another bacterium. Using the new bacterium makes waste eating visible. A detection device is under development at Oakridge National Laboratories and the University of Tennessee.

The American Chemical Society believes that long-term support of basic research by the federal government is crucial if the Nation's economy is to receive the benefits of environmentally sound, competitive energy systems and a healthier environment. New cleanup solutions and pollution prevention must be enhanced by conducting the relevant fundamental research and supporting the research infrastructure. ***The ACS urges the Subcommittee to adequately fund such fundamental environmental research through sufficient support for DOE's Office of Energy Research programs.*** The potential is there, and the initiative is in your hands.

PREPARED STATEMENT OF MICHAEL L. MARVIN, DIRECTOR, GOV'T AND PUBLIC AFFAIRS, AMERICAN WIND ENERGY ASSOCIATION

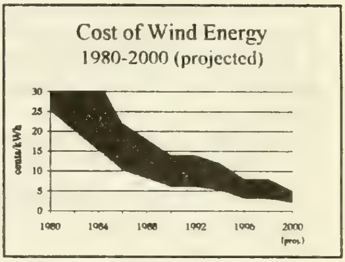
The American Wind Energy Association, AWEA, was formed in 1974. It represents virtually every facet of the industry, including turbine and component manufacturers, project developers, utilities, academicians and interested individuals. AWEA has nearly 700 members from 48 states.

SUMMARY OF TESTIMONY

The American Wind Energy Association respectfully requests an appropriation of $53.5 million for wind energy research and development for fiscal year 1997. These levels would allow an increase in core research activities, stronger technology validation, more focused turbine research and a more comprehensive testing and certification program for the United States. Budget reductions of 32 percent made in FY 1996 (compared to the FY 1996 Administration request) are beginning to have a negative effect on efforts to achieve efficiency and price goals set by the Department of Energy. With Congressional support of DOE wind program funding levels, the U.S. wind industry believes it can reach the stated target of 2.5 cents per kilowatt-hour (in 15 mph winds) by the year 2000.

STATE OF THE INDUSTRY

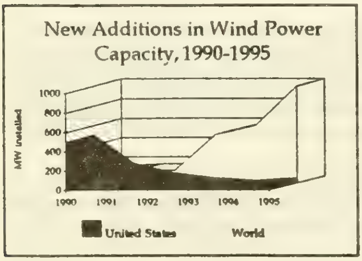
Working with the Department of Energy, the U.S. wind industry has achieved **cost reductions of more than 80 percent** over the past 15 years (see graph, right). These efficiencies have come through stronger designs, more rigorous testing in the laboratory and the field, and through the experiences gained through the generation of roughly 3.5 billion kilowatt-hours of electricity per year.



Electric utilities working most directly to develop wind energy projects include:

- Portland General Electric (Ore.)
- PacifiCorp (Wyo., Colo., Ore., Utah)
- Northern States Power (Minn., S. Dak., N. Dak.)
- Lower Colorado River Authority (Texas)
- Texas Utilities (Texas)
- Central and South West Corp. (Texas)
- Green Mountain Power (Vermont)
- Sacramento Municipal Utility District (California)

Despite continuing reductions in cost and increases in efficiencies, the domestic market for wind energy has stagnated, due principally to historically low natural gas prices and the uncertainty surrounding electric utility restructuring. Worldwide, the use of utility-scale wind energy is exploding; in 1994, the market exceeded $1 billion for the first time, setting a record. Last year, that record was shattered, with nearly 1,300 megawatts installed and more than **$1.5 billion in sales** (see graph, page 2).



There is no indication that the non-U.S. markets show any signs of waning, as countries such as Germany, Spain, China and India continue aggressive expansion plans. The challenge for U.S. industry is competing in the worldwide market in the absence of a definable domestic market and dramatic reductions in the prices paid for wind-generated electricity in California (where the bulk of the U.S. wind market is located).

CORE COMPONENTS OF THE DOE WIND RESEARCH PROGRAM

Next-generation Wind Turbine

Key to the success of the U.S. industry is working with DOE and the National Renewable Energy Laboratory (NREL) to develop and test new, larger turbines designed for the expanding export market and the slowly developing domestic market. These larger turbines may also have applications in replacing first-generation turbines emplaced in the early 1980s, since one new turbine can replace as many as 25 older turbines (owing to larger size, lower costs and higher efficiencies).

In Fiscal Year 1995, DOE began field testing prototype next-generation turbines at the National Wind Technology Center (NWTC), including the AWT-26 (designed by AWT, Inc., of Washington and owned by FloWind Corp. of California) and the AOC-50 (designed and produced by Atlantic Orient Corp. of Vermont). During the current fiscal year, the NWTC will continue testing subsystems and components such as generators, blades, and braking and control systems.

FY 1997 offers the expectation of completing prototypes of three innovative, utility-grade (large-scale) wind turbines. Negotiations are continuing with Zond Corp. (California), Kenetech (California) and The Wind Turbine Company (Washington) to design, construct and test turbines ranging in capacity from 500 kilowatts to

1,000 kilowatts each. This flagship program continues to be the best hope of quickly and successfully penetrating the electric generation market.

We have witnessed the stagnation of the domestic market and the simultaneous explosion of the international market. The realities of regaining U.S. competitiveness in this global market means that the technology must not only be better, but markedly better.

Why? Massive government subsidy programs in countries such as Denmark and Germany ensure that companies from those nations, when travelling to a major foreign market such as India, will be in a position to offer lucrative deals underwritten by their respective governments. Similar support from U.S. agencies, although growing, is no measure against such aggressive export programs. To successfully negotiate business opportunities requires creative deal-making and the best quality turbines in the world.

The Department of Energy has stated its goal for these innovative turbines: generating electricity at a price of **two-and-a-half cents per kilowatt-hour in 15 mile-per-hour wind regimes by the year 2000**. It was only five years ago when the goal of the industry and the DOE was a turbine capable of generating electricity for five cents per kilowatt-hour. With outstanding cooperation between the wind companies and the federal government, that goal was met -- ahead of time and under budget.

But the electricity generation market has changed rapidly in the past five years. Today, utility restructuring initiatives at both the state and the federal level have discouraged utility executives from venturing into newer technological innovations such as wind which have higher costs in the short term. This, combined with historically low natural gas prices, has created a **hostile domestic energy market** at just the time the industry was becoming competitive.

The wind industry stands at a cross-roads. Utility researchers such as the Electric Power Research Institute have said **wind will likely be the cheapest way to generate electricity** early next decade. Yet forces outside the control of the American wind industry have converged to threaten the very existence of a broad U.S-based wind energy industry. This occurs despite successive record-smashing years of wind energy sales overseas.

National Wind Technology Center and Testing Initiatives

The National Wind Technology Center, located near Rocky Flats, Colorado, already is proving itself to be a **world-class research and development center**. Opened in 1994 under the direction of NREL, the Center has made a strong impression internationally, and represents a powerful statement by the U.S. Government that this country is not ceding the multi-billion dollar wind energy markets to its international competitors. Given the buffeting U.S. wind companies have taken in the past half-decade, this clarion call could not have been better timed.

The value of the NWTC is multiplied many-fold in a small but emerging technology sector where access to research and development capital is limited: equipment that is too costly for any single company can be centrally-located where U.S. companies can have access to that equipment. With that multi-company access, the federal taxpayer is getting a powerful return on investment because multiple tests--cost-shared by the companies--can help pay for the equipment and help reduce the sometimes overwhelming costs of technology performance verification.

An excellent example is the soon-to-be-acquired 1.5 Megawatt dynamometer, a machine that can provide rigorous testing of gearboxes, generators, converters, drivetrains, controls, brakes and general fatigue in a laboratory setting. The dynamometer allows mechanical component testing in a rapidly accelerated timeframe: **the simulation of 20 years in the field can be accomplished in a matter of months.**

With that purchase alone NREL, through the NWTC, can provide state-of-the-art dynamometer capability for the industry, can support in-house research, can create a full-scale simulation and design validation and can support certification testing of U.S. turbines. Absent certification, many American turbine developers are finding much of the $1.5 billion a year international marketplace out of their reach.[1]

Although the dynamometer is by no means the only example, it is the best example of how we believe the federal government and small companies in an emerging field can work in tandem to enhance U.S. competitiveness for the 21st century.

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[1] A compelling example is the AWT-26 turbine, part of the Advanced Wind Turbine program. Despite winning national awards for design excellence, a requirement that wind turbines be certified before being eligible for the massive energy market in India is making market entry difficult--despite the fact that the company has signed contracts to deliver power. The U.S. has not yet established certification testing, although the industry is working with DOE to develop certification criteria.

Applied Research

Much of the focus of the applied research program focuses on the development of models to help better understand aerodynamics (through wind tunnel tests), fatigue damage prediction and structural reliability capabilities. Modeling and code design activities are underway at both NREL and Sandia National Laboratory.

Blade design programs continue to result in larger, more efficient, and quieter rotor systems that are critical to capturing more energy from turbines located in lower wind speed areas. Although some wind power plants can be sited today for well under five cents per kilowatt-hour, these plants are generally located at sites with excellent wind regimes. Creating a competitive wind plant in areas of the country with good (but less than excellent) wind regimes will open up markets in the midwest, southwest and northeast that were previously unattainable.[2]

Hybrid, International and Agricultural Programs

Much of the attention in the wind program is focused on the utility-scale turbine development and testing activities. But smaller (300 W to 50 kW) turbines can address niche market needs as well as or better than any technology. In fact, according to NREL, small wind is the cheapest option for tens of thousands of villages compared to transmission grid extension or diesel generators.

NREL has worked closely with a number of wind companies to encourage less-developed countries in Central and South America and the Far East to utilize wind energy in areas that lack a central transmission grid. More than **two billion people in the world lack access to electricity** or to their nation's electric grid. The opportunities for small turbines to electrify villages and pump water for both human, grazing and agricultural uses is only now being fully understood.

There is a huge worldwide market opportunity in diesel generator replacement alone.[3] The scores of villages which have diesel generators as their sole power source often find themselves unable to either repair the generators when they are down or to have hard capital available to purchase fuel, leaving the generators as white elephant reminders of failed energy policies. Small turbines which operate on principles of near-100 percent availability and simple design (leading to easier maintenance and repair) are ideal matches for many of these villages.

Conclusion

There is virtually no argument that the use of **wind energy for utility-scale electricity generation will continue to expand both here and abroad**. The question we are faced with is the role of the U.S. industry in that market. The industry is proving itself as one of the leading contenders to produce the cheapest electricity from any source, yet the domestic markets stagnate, and domestic wind companies are suffering because of it. The financial strength of the industry belies its successes and its potential. Through a continued partnership with the Department of Energy, the U.S. wind industry can develop the best-designed, least-expensive turbines in the world, and help the U.S. toward a **positive trade balance** in energy and electricity.

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[2] The same theory applies to international markets. An examination of wind speeds around the world shows markets increase exponentially as turbines are able to cost-effectively generate power in Class 3 (14.3 mph at 50 meters) and Class 4 (15.7 mph at 50 meters) winds.

[3] Representatives of the Mexican national utility have said publicly that small wind turbines and wind-pv hybrid systems represent the only technically and economically feasible way to bring power to the 100,000 unelectrified villages in Mexico.

PREPARED STATEMENT OF PHILLIP BAYNE, CHIEF EXECUTIVE OFFICER, NUCLEAR ENERGY INSTITUTE

Mr. Chairman and Members of the Subcommittee:

I am Phillip Bayne, chief executive officer of the Nuclear Energy Institute (NEI). I am pleased to submit NEI's views on the federal government's nuclear energy programs for fiscal year 1997.

NEI represents approximately 275 companies and organizations worldwide, including all U.S. electric utilities that operate nuclear power plants, nuclear plant equipment suppliers, engineering/construction firms, nuclear fuel cycle companies, suppliers of radionuclides and radiopharmaceuticals, law firms, consulting firms and labor unions.

We would like to thank members of this subcommittee for consistently supporting nuclear energy as an essential component of the nation's energy portfolio. Electricity is one of the cleanest sources of energy, and nuclear energy one of our cleanest sources of electricity. Generating electricity at nuclear power plants produces no air pollutants or greenhouse gases, thus protecting our environment while helping to meet our energy needs.

My statement focuses on three issues: the Department of Energy's civilian high-level nuclear waste disposal program, funded through the Office of Civilian Radioactive Waste Management (OCRWM); user fees charged to nuclear utilities to fully fund the Nuclear Regulatory Commission; and the joint industry-DOE advanced reactor research and development effort funded through DOE's Office of Nuclear Energy.

Nuclear Waste Management

As this nation confronts a new budgetary climate, Congress must not lose sight of previous commitments made by the federal government. Under the Nuclear Waste Policy Act of 1982 and contracts between the Department of Energy and electric utilities that own and operate the nation's nuclear power plants, the federal government has a responsibility to begin managing used nuclear fuel from the nation's commercial nuclear power plants beginning in 1998.

To fulfill that commitment, Congress is crafting legislation (S. 1271 and H.R. 1020) to authorize the Energy Department to build and operate a central storage facility in the Nevada desert until a permanent disposal facility is ready. Unfortunately, the process of determining the suitability of a candidate repository site at Yucca Mountain has a legacy of delay and budget reductions. In recent months, DOE has adjusted its milestones again, reflecting another five-year delay in repository operation until 2015—if the site is found suitable. By 2015, 93 nuclear units will have exhausted existing capacity to store spent nuclear fuel.

In this year's appropriation, this subcommittee must balance two major imperatives: preparing for federal acceptance of used fuel beginning in 1998, and continuing tightly focused scientific studies at Yucca Mountain.

Last year, the leadership of this subcommittee supported the beginning of an integrated program to manage high-level radioactive waste. Reserving $85 million in the FY96 budget was an appropriate catalyst to focus the program in the right direction. The nuclear industry is working actively with the Congress on passage of the appropriate legislation to move the program further in the right direction—creation of an integrated spent fuel program that includes a federal spent fuel storage facility at a single location and continued work on a geologic repository.

The industry supports continued funding for Yucca Mountain in fiscal year 1997 to study important scientific characteristics of the site, and reach a conclusion about Yucca Mountain in accordance with DOE's revised plans for repository development. The Department of Energy has requested $339 million for Yucca Mountain scientific studies in FY97, just $200 million of that from the Nuclear Waste Fund.

The industry believes that DOE's request should be allocated to more appropriately to reflect the federal government's responsibility to accept spent fuel beginning in 1998. As such, the industry recommends that $50 million be earmarked for waste acceptance, storage and transportation to prepare for legislation authorizing construction of a central storage facility and $300 million for Yucca Mountain site characterization.

DOE's request for waste acceptance, storage and transportation is not sufficient to ensure significant progress in this area, including development of a generic safety analysis report for an interim storage facility that could be submitted to the NRC in advance of site selection.

Although the administration says total requested FY97 funding is sufficient to maintain its milestones to determine suitability of the site by 1998 and submit a license application by 2002, it should be noted that the amount proposed to be drawn from the Nuclear Waste Fund is less than one-third of more than $600 million contributed by electricity consumers in 1995.

As site characterization activities have progressed, there has been increasing discussion about the way the federal government funds oversight programs for the state of Nevada and affected counties near Yucca Mountain. Affected local governments should continue to receive federal funding for appropriate scientific oversight. However, we remain concerned about audits by the state of Nevada and the General Accounting Office which have found that the state of Nevada has misspent millions of dollars.

In February, Nevada state lawmakers released an audit that found discrepancies in the use of monies by the Nevada Nuclear Waste Project Office and its contractors. The General Accounting Office, in a March report prepared for the House Commerce Investigations and Oversight Committee, found that money earmarked for scientific oversight was instead spent by the Nevada Nuclear Waste Project Office for a nationwide public relations campaign against site characterization of Yucca Mountain.

The nuclear industry believes scientific oversight is appropriate and necessary. But the program requires the necessary checks to ensure ratepayer funding is spent on appropriate oversight projects, not lobbying and grassroots activities that have been restricted by this subcommittee.

Unfortunately, funding for appropriate oversight by the affected counties has also been adversely impacted as a result of a lapse in congressional authorization. As the members of this subcommittee know, affected counties are not currently receiving oversight funding from the federal government. In a recent exchange of letters between DOE and the House Energy and Water Development Subcommittee chairman and ranking member, the leadership reaffirmed report language in the FY96 Energy and Water Development Appropriations bill to withhold oversight money from the state and affected counties.

During consideration of this year's funding, the industry urges the subcommittee to implement effective restrictions to prevent the state of Nevada from further misuse of payments by electric utility customers to the Nuclear Waste Fund, while allowing legitimate oversight programs to proceed. This may involve increasing funding for the affected counties or a more significant role for the Nevada university system. Both have a successful history of scientific oversight work in conjunction with the repository and the Nevada Test Site, and offer a reasonable solution to appropriate use of oversight money.

The nuclear energy industry has general principles that we believe should guide Congress as it continues to reshape the DOE program:

- DOE must finally accept responsibility to develop and begin implementing a waste management system that is capable of removing spent fuel from nuclear reactor sites in 34 states beginning in 1998.

- Congress must designate a location for, and mandate construction of, a federal interim storage facility and the necessary transportation network to ensure access to the facility from existing rail lines.
- Milestones must be established for the development of the interim storage facility and transportation infrastructure to support spent fuel acceptance beginning no later than Jan. 31, 1998.
- Site characterization for development of a repository must continue. Disposal of spent fuel remains the ultimate program objective.

S. 1271 as approved by the Energy Committee, requires the federal government to develop a central storage facility at the Nevada Test Site by Nov. 30, 1999, unless the Energy Department determines that Yucca Mountain is not suitable as a repository site. In that case, DOE must find an alternative site for spent fuel management by Nov. 30, 1999. If it has not done so, the federal government must build a central storage facility at the Nevada Test Site within one year. The industry commends the Energy Committee for moving forward under very difficult circumstances to strike an appropriate balance between the government's near-term responsibility to accept spent fuel and continuing scientific studies to determine if Yucca Mountain is a suitable location for a repository.

As the members of this subcommittee know, utilities and state regulators are increasingly concerned about the equity of requiring utility customers to pay for both the DOE civilian radioactive waste program and additional at-reactor storage. Seventeen utilities and 28 states have filed separate lawsuits against the Energy Department asking the Circuit Court of Appeals to rule that DOE must begin accepting spent fuel beginning in 1998. Additionally, regulators in a handful of states are considering withholding electricity consumer payments to the Nuclear Waste Fund due to inaction by the federal government.

DOE recognizes that failing to meet its 1998 responsibility will cause utilities and their customers to face significant costs associated with expanding spent fuel storage at reactor sites. Although there is an urgent need to develop a central storage facility now, an interim storage program is meaningful only if DOE continues to make progress in developing a permanent repository.

The nuclear waste disposal issue will be solved only when the federal government satisfies its responsibility to begin accepting spent fuel beginning in 1998. We are ready to work with the administration and Congress in the development of an integrated spent nuclear fuel management system that can satisfy DOE's commitment to electricity consumers.

The nuclear industry is also concerned that DOE funds are being spent for additional scientific tests at the proposed low-level radioactive waste disposal site in California despite the fact that low-level waste disposal is a state, not a federal, responsibility. California has already exhaustively studied the Ward Valley site and has not asked for DOE assistance.

Nonetheless, the Interior Department again delayed the transfer of land at Ward Valley, Calif., for this facility. Instead, the Interior Department ordered new tests and asked DOE to conduct a year-long study of the site. The administration requested this new study despite assurances from NAS and the state of California that the site is safe. Mr. Chairman, the industry believes that funds appropriated by Congress should not be used to conduct this study, which amounts to an election-year payoff that sacrifices the needs of patients and consumers. Congress instead should take appropriate action to prevent further obstruction by the federal government in California's efforts to comply with the Low-Level Radioactive Waste Policy Act.

NRC Budget/Regulatory Review

The nuclear energy industry continued to push plant performance to record levels and cut production costs in 1995. America's nuclear plants established record levels of efficiency for the sixth straight year—achieving a 76.7 percent capacity factor. While continuing a steady upward trend over the last 10 years in increased productivity, utilities that operate the nation's nuclear power plants cut operating and maintenance costs by 8 percent from 1993 to 1994.

Lower production costs and increased production translate to electricity costs at nuclear power plants that are competitive with coal-fired plants and cheaper than oil, natural gas and renewable energy sources.

As the electric utility industry becomes more competitive, utilities must closely examine their budgets in all areas. And while the industry is committed to maintaining its exemplary safety record at nuclear power plants, it expects Congress to use fairness and equity in allocating user fees that comprise 100 percent of the NRC's annual budget.

Since FY91, NRC licensees have shouldered the entire cost of the agency's budget through annual user fee payments. Of the NRC's FY96 budget, 97 percent—$462.3 million—is recovered by assessing user fees to utilities and their customers. The average utility licensee pays $2.7 million per nuclear power plant, plus an average of $1 million per plant in hourly charges for NRC activities.

This level of support is unique to the nuclear energy industry and it is unlikely to change absent pressure on the commission by this subcommittee to operate more effectively on a leaner budget. The NRC's costs should be no higher than required for the agency to ensure protection of public health and safety. We believe the percentage of NRC costs paid by our members should be commensurate with agency resources dedicated to regulating the industry—not international programs and other federal agency activities.

For a five-year period beginning in FY90, the commission budget increased by approximately 25 percent. There is clear evidence of budget and management inefficiencies at the NRC. The NRC Inspector General (IG) has published several reports since 1992 that document NRC management deficiencies that can be directly attributed to its user fee policy. In fact, a 1994 NRC staff study found that utilities pay at least $35.1 million annually in fees to support activities that have no bearing on the regulation of commercial nuclear energy facilities.

As the subcommittee can see, there is a pressing need for improvement in containing the NRC budget and in ensuring the equity of the commission's user fee policy. The nuclear industry will continue to pay for NRC programs from which it receives benefits and for those programs that contribute to protecting public health and safety. However, we encourage the subcommittee to examine the commission's FY97 budget closely and assign the industry only those costs that are appropriate to regulation of nuclear power plants.

The industry recognizes that the NRC absorbed about a 10 percent budget decrease in FY96 by reducing programs in its headquarters operations. Further budget reductions should not be made at the expense of the Office of Nuclear Reactor Regulation, as they were this year. Rather, the agency should closely examine its regional alignment and areas of redundancy that result from that configuration.

The industry recommends that the NRC revise its approach to regulation and implement targets that allow utilities to meet regulatory requirements without step-by-step, prescriptive regulation. Such a performance-based regulatory system would maximize NRC resources and enhance efficiency in this tight budgetary climate. We commend the NRC for beginning that transition by implementing a performance-based maintenance rule for nuclear power plants, and encourage the commission to continue the transition with future rulemakings.

The industry is seeking to redefine the relationship between the NRC and its nuclear utility licensees to achieve a regulatory environment that:

- preserves the commission's statutory mandate to protect public health and safety;
- preserves the licensee's ultimate responsibility for safe operation; and
- meets certain fundamental criteria of openness, clarity, consistency and efficiency.

Advanced Reactor Research and Development

In the area of advanced nuclear energy research and development, the industry supports $64 million in FY97 for the DOE-industry cost-shared program to develop advanced light water reactor (ALWR) technology—$24 million more than the administration's request.

A consortium of 12 utilities called the Advanced Reactor Corporation (ARC) participates in the development of new nuclear power plant designs, and represents one of the largest sources of private-sector cost sharing to DOE's energy supply research and development activities. In recent years, the nuclear industry, through ARC, has front-loaded its cost share commitment for ALWR research and development. Now, with the ALWR program on the verge of producing market-ready nuclear designs for the 21st Century, the industry expects the federal government to fulfill its funding obligation with the same commitment.

The federal government's investment in these valuable research and development projects is essential to continuing nuclear energy's strategic role in the nation's energy portfolio. These reactor technologies are between 50 percent and 90 percent complete. Furthermore, payback provisions in the program will provide a return to the U.S. Treasury when these advanced nuclear power plants are built to meet future electricity demand.

The Energy Policy Act of 1992 provided a multi-year authorization for the ALWR design certification and first-of-a-kind engineering (FOAKE) programs to support the commercialization of advanced reactor designs. The industry funds more than half of the program, and has upheld its side of the agreement. However, continued federal participation is essential to completing the program.

Approximately half of the funding in FY97 is needed to complete first-of-a-kind engineering work on two advanced light water reactor designs. DOE has requested $18 million for this work, which will provide pre-commercial engineering beyond the scope required by the NRC for design certification. Another portion of the funding includes design certification for one smaller, passively safe plant.

The ALWR program meets all four of the national energy goals for prioritizing the Energy Department's R&D projects as established by the 1995 Yergin Report:

- economic strength,
- energy security,
- environmental quality, and
- science and technology leadership.

Moreover, the ALWR program fulfills all of the objectives for cost-shared programs recommended by the Yergin Report. Those objectives include leveraging government R&D spending, introducing market relevance into R&D decision making, and accelerating the R&D process and transferring the results to the marketplace.

This new generation of commercial reactor technology represents a large and growing high-tech industry and trade opportunities that will strengthen both the U.S. economy and the nation's leadership in ensuring the peaceful use of nuclear technology.

Continuing U.S. leadership in the world market for nuclear technology is critical. America holds a slim to commanding edge in various areas of nuclear energy technology, but other nations, such as France and Japan, have state-subsidized nuclear programs that are competitive in the global market. The United States cannot afford to lose its market advantage because of a short-sighted R&D strategy.

The nuclear industry firmly believes the United States must continue to set the worldwide standard to provide the safest and best engineered nuclear designs, components and fuel services. Many nations will not consider U.S. reactors unless they are certified by the NRC, one of the goals of the ALWR program. Elimination of this program will signal to other nations a serious lack of constancy in U.S. policy, calling into question the reliability of U.S. manufacturers and jeopardizing their participation in billions of dollars of projected nuclear projects worldwide. The nuclear export market is significant, with up to 50 nuclear power plants expected to be ordered in Southeast Asia over the next 15 years.

The nuclear industry believes past funding reductions and long-range plans by the administration to reduce funding for nuclear research and development activities do serious damage to our ability to meet the nation's long-term electricity needs and power economic growth. This subcommittee must maintain and support research to advance nuclear energy in this country.

Finally, as part of DOE's nuclear R&D program, the industry supports funding for the university reactor assistance and support programs. The industry programs are necessary for valuable nuclear research and training. Continued congressional recognition of these programs for future leaders in high-tech nuclear technologies is essential to ensure America's leadership in nuclear energy programs.

PREPARED STATEMENT OF THE SPELMAN COLLEGE, ATLANTA, GA

Mr. Chairman, and other Members of the Committee, thank you for the opportunity to submit testimony on behalf of Spelman College, regarding the FY97 Energy and Water Appropriations bill and the U.S. Department of Energy (DOE). As many of you know, Spelman College is nationally recognized as one of our country's leading educators of African-American women.

Under the leadership of President Johnnetta B. Cole, Spelman is continuing to expand its national visibility and establish itself as one of the best liberal arts colleges in America. The fact that the College is experiencing success in realizing this goal is evidenced by the accolades echoed throughout the academic, philanthropic and business communities. In a recent report by the Carnegie Foundation for the Advancement of Teaching, Spelman was recognized as one of only two historically Black colleges awarded a classification of Baccalaureate I and is now recognized as a highly selective, competitive, national liberal arts college.

Over the years, the College has earned international distinction for its science, engineering and mathematics program. The College launched its science program during the early 70s, long before science education was embraced as a national priority. Today, one third of the College's diverse student body major in science, mathematics, or a dual degree program in engineering, and 30 percent graduate annually in these areas. According to a 1993 survey of the top 100 baccalaureate degree producers, Spelman ranked second for the number of degrees awarded to African Americans in mathematics; fifth for the number of degrees in the physical sciences; and seventh for the number of degrees awarded in the biological sciences. Since 1988, the College has witnessed a 57 percent increase in the number of science majors entering graduate programs. Some of the graduate schools where Spelman women have gone on to pursue Ph.Ds include: Cornell University, Purdue University, Massachusetts Institute of Technology, Georgia Institute of Technology, University of Michigan, and University of Wisconsin.

Spelman's past accomplishments and capacity for future distinction, recently earned the College top recognition by the National Science Foundation as a Model Institute for Excellence in science education. Spelman's achievements, in many ways, are unparalleled and do not reflect national trends. We see that, today, a young African American girl has one chance in 21,000 of ever getting a Ph.D. in these areas. Moreover, there has been a decline in the number of African American women earning Doctorates in Science and Engineering. In 1980, 3.9 percent of these degrees were awarded to members of this group. Compare that to 1990 date showing only 2.7 percent of these degrees awarded to African American women.

Last year, in an effort to further develop national support for our science initiative, Spelman sought to increase its collaborative efforts with the Department of Energy. As you know, the Department plays a unique and key role in addressing these national educational and workforce challenges. With over 20 national laboratories and facilities, DOE has the largest scientific research and development system in the world. DOE reports more than 30,000 scientists and engineers are associated with DOE-sponsored activities. Thanks to your assistance, the College now has an opportunity to participate in these activities.

With respect to the sciences, this Committee has demonstrated leadership in responding to the education and training demands confronting the nation. More than most, you recognize that a trained and scientifically literate workforce is needed to meet the challenges we face. With the assistance of this Committee, we have made significant progress in finalizing an agreement with DOE that promises to enhance the participation of African American women in DOE-supported activities. Without the assistance of this Committee, it is unlikely that such an agreement would be possible. Quite simply, we want to say thank you.

The initiative we are developing with DOE reflects Spelman's strengths, priorities and principles that underlie the strategic vision of the Department. With a primary focus on the environmental sciences, the major project goal over the next five years is to enhance the academic capacity of Spelman College to deliver an excellent SEM program in order to: (1) increase the number of African American women students earning SEM baccalaureate degrees with an environmental sciences concentration; and (2) increase the number of African American women pursuing SEM graduate degrees and professional scientific careers in this critical area of study.

In FY96, we expect to receive a minimum of $750,000 which will be used for equipment acquisition and summer visits to Energy laboratories by Spelman faculty/student research teams. As we move forward in our negotiations with DOE, we recognize that continued support of this Committee will be vital to the successful completion of our objectives. Consequently, for FY97, we request that $2 million in funding be provided to support this initiative.

With your help, Spelman College is confident that it will be in a better position to graduate a large number of highly trained African American women with the knowledge and skills necessary to succeed in SEM graduate study, compete in the professional market and excel in scientific careers relevant to DOE. We have every expectation that our efforts will serve as a national model.

PREPARED STATEMENT OF NORMAN I. MALDONADO, PRESIDENT, UNIVERSITY OF PUERTO RICO

A. Introduction and Background

Mr. Chairman, and other members of the subcommittee, on behalf of Dr. Norman I. Maldonado, President of the University of Puerto Rico (UPR), the University wants to thank you for the opportunity to provide testimony on behalf of the University, during your deliberations on the FY97 Energy and Water Appropriations bill, regarding the Department of Energy and efforts underway to increase the participation of Hispanic professionals within its programs.

The University of Puerto Rico, founded in 1903 as a land grant institution, is the state university of Puerto Rico and the largest Hispanic Institution of higher education in the United States. It is also one of the largest multi-campus systems in the country. The UPR has over 62,000 students (66 percent of whom are women), 5000 faculty members, four major campuses and six regional colleges and other units throughout the island. The University operates schools of Law, Science, Mathematics, Engineering, Medicine, Architecture, Humanities, Education and Social Sciences and offers over 360 academic programs, all fully accredited by national organizations. As the premiere Hispanic institution in the United States, the University of Puerto Rico has graduated more than 250,000 students, many of whom have made significant contributions to American society.

B. Accomplishments

As background , the Committee should know that the University ranks number one among all U.S. institutions in terms of the number of Hispanic students that go on to obtain Ph.Ds in science and engineering. For instance:

- One in ten students attending the University's largest campus at Rio Piedras that receive a Bachelors degree in science go on to obtain Ph.Ds.

- The University is the largest producer of Hispanic women professionals in the nation. UPR at Mayaguez is the 16th largest engineering school in the nation, enrolling over 4,000 students, of which about 1600 are women.

- Over 20 percent of the MDs and BS degrees in science, engineering and mathematics granted to Hispanic Americans have been awarded by The UPR.

- Among those Hispanics receiving Ph.Ds in science, engineering and mathematics, 20 percent did their undergraduate work at The UPR.

- The UPR is the leading source of Hispanic engineers for the National Aeronautics and Space Administration (NASA).

- The UPR holds the unique distinction of being classified as a land grant, sea grant and space grant institution of higher education.

No other school in the Nation can boast these statistics. This enormous talent pool of Hispanic students, faculty and researchers has contributed to the development of the island, other parts of the Caribbean, and the nation. Consider, for example, that while Puerto Rico is an island with a population of about 3.6 million people, a paper published just last summer entitled, *The Economic Relation of the United States and the Puerto Rican Economies: An Interregional Input-Output Approach*, estimated that activities underway on the island contribute $39.8 billion to the U.S. Gross Domestic Product annually. Consider also, that almost every one of our nation's major pharmaceutical companies, approximately 30, have a plant on the island generating about $6.7 billion of the island's total Gross Domestic Product. The vast majority of the Chief Operating Officers managing these companies in Puerto Rico are graduates of The UPR.

C. Challenges and Recommendations

The contributions of The UPR to the nation's economy and overall well-being are clear. Mr. Chairman, in this historic era, we have experienced the end of the Cold War, the dawn of the information age, and the emergence of a global economy that is knowledge-based. In order to sustain the nation's current competitiveness in this environment, as well as the current quality of life for all citizens, all persons must be technologically-literate and have strong skills in science and mathematics. Most notably, as the fastest growing population in the United States, persons of Hispanic origin will play a key role in determining whether our nation effectively meets the economic, technological and workforce challenges that lie ahead.

Over the last decade, a number of Federal initiatives have helped to develop the education and research capability of Hispanic Serving Institutions (HSI). HSIs are defined as those institutions in which 25 percent of the total student population are of Hispanic origin. While progress made by these schools has been significant, there are too few HSIs with established graduate-level education and research programs to meet the needs of a rapidly growing U.S. Hispanic population. Therefore, it is critical for the nation to formulate a plan to build the capacity of graduate-level HSIs, so that we may effectively meet the challenges facing the nation.

As the nation's leading HSI for science and technology, The UPR responded to this challenge by developing a proposal to support the establishment of a Hispanic Collaborative for Research and Education in Science and Technology (HiCREST). The collaborative's overarching goal is to establish world-class excellence in education and research at the nation's graduate-level HSIs that would expand the educational opportunities available to Hispanic students in the next century. HiCREST is designed to link the HSIs with major competitive research institutions and National laboratories, primarily those located at the Department of Defense and the Department of Energy.

Last year, The UPR worked with the distinguished Chairman of this subcommittee, as well as with other key Congressional leaders, to encourage a HiCREST collaboration with the Department of Defense. Through these efforts we were successful in securing HiCREST language in the FY96 Defense Appropriations Conference report. In addition to working with Congressional and Federal officials, the UPR sent a delegation to New Mexico to explore collaborations with several HSIs and Federal laboratories and establishing a system-wide HiCREST Strategic Development Team to organize and implement this initiative.

This year, The UPR is focused on establishing a collaboration with DOE. The University has received very little research funding from the Department of Energy over the past ten years. The recent award of a multi-disciplinary DOE-EPSCoR project in Puerto Rico has provided a new base on which a competitive research effort can be founded. One of the objectives of HiCREST will be to solidify the foundation laid by DOE-EPSCoR, and search for new opportunities to enhance the research capabilities of the UPR. Such an enhanced collaboration would: (1) leverage already invested and increasingly scarce resources; (2) meet emerging research and technological needs of the Department and the nation; (3) address emerging workforce needs by producing students with advanced skills; and (4) prepare the nation for emerging global developments, particularly as these issues relate to Latin America.

During the first week in March, The UPR sponsored a workshop that brought Dr. Martha Krebs, Director of DOE's Office of Energy Research and a team of representatives from the DOE national laboratories and Basics Sciences division to Puerto Rico to identify potential collaborations, and to plan for cooperative research and faculty exchanges between the national laboratories and The UPR. The workshop was a great success with both the UPR and DOE officials agreeing that the University is poised to build its existing research base, and the UPR and other HiCREST institutions are now working to partner with DOE to meet national energy-related research, development and human resource needs and build its economic base.

It is in this vein, Mr. Chairman, that The UPR asks this subcommittee to support the HiCREST initiative. The University is requesting that of the funds provided to the Office of Energy Research, $5 million in funding be awarded to support one consortium effort, with a Hispanic institution serving as the lead institution. The UPR and its partners in New Mexico look forward working with the Committee to receive funding for this initiative.

Mr. Chairman, again, thank you for allowing the University of Puerto Rico to provide this written statement for the record.

PREPARED STATEMENT OF THE NAVAJO NATION

Mr. Chairman and Members of the Subcommittee, the Navajo Nation, America's largest Indian nation appreciates this opportunity to present the Navajo Nation's Fiscal Year 1997 funding request to the Subcommittee.

At the outset, the Navajo Nation wishes to thank Chairman Domenici and Ranking Minority Member Johnston, as well as the other Subcommittee Members for their attention to the Navajo Nation's needs in the past years, including providing $6.1 million for the Navajo Transmission Project in FY 1996. We look forward to continuing our productive relationship with the Subcommittee on funding efforts for Indian energy and water development programs.

THE NAVAJO NATION

The Navajo Nation encompasses 17.5 million acres, spanning the states of Arizona, New Mexico, and Utah. The Navajo Nation lies on the arid and semi-arid uplands of the Colorado Plateau, with an average elevation of 6,000 feet above sea level, and an average annual precipitation ranging from less than 6 inches in the Painted Desert and San Juan River Valley, to more than 20 inches on isolated mountain peaks.

The Navajo Nation is also endowed with significant renewable and non-renewable natural resources, including surface and groundwater, rangelands and woodlands, irrigated farmlands, forests and lakes, fish and wildlife, and substantial reserves of coal, oil, and natural gas.

Despite these natural endowments and our significant economic potential, socio-economic conditions on the Navajo Nation are comparable to those found in underdeveloped third world countries. The Navajo Nation is characterized by unemployment levels ranging seasonally from 31% to 50%; per capita income averaging $4,106; and over 56% of its people live below the poverty level. Basic "necessities" of life, taken for granted elsewhere in America are sorely lacking in the Navajo Nation: 77% of Navajo homes lack plumbing, 72% lack adequate kitchen facilities, and 76% lack telephone service.

Our rural development deficit contributes to a seemingly never-ending downward spiral. We are constantly seeking to attract jobs and businesses to our reservations to spur economic growth and address our massive infrastructure deficiencies, but those infrastructure deficiencies (and the resulting higher non-wage costs facing businesses locating on reservations) continually undercut and frustrate our efforts. The Navajo Nation's primary source of revenue is derived from its natural resources. Accordingly, the Navajo Nation has made substantial investments of its limited financial resources into the management and development of Navajo natural resources, including water resources development and maintenance.

However, the Navajo Nation's own revenues from taxes and royalties are decreasing; we estimate by as much as 10% in the coming year. Depletion of the oil and gas resources and the expected negative impact on coal sales by the recent deregulation of the American energy market has jeopardized the flow of the Navajo Nation's revenue stream. And unlike a very small percentage of Indian nations, the Navajo Nation has not legalized nor benefitted from Indian gaming.

Therefore, the Navajo Nation requests that the Subcommittee direct the Bureau of Reclamation to support the Navajo Nation with the same level of attention, expertise and assistance which have long benefitted other regions and made possible the prosperity of the west. The federal trust responsibility is not in the province of a single agency, but instead is shared by all federal agencies.

Some of the projects needed in the Navajo Nation are obvious and have been defined for some time. For example, there are at least 12 major unsafe dams in Arizona and New Mexico. These twelve dams total 71,130 acre-feet for surface water storage, approximately 90% of the total Navajo Nation storage capacity. Eight of these dams are currently listed as "high" or "significant" hazards on the Department of Interior's technical priority list of deficient dams. Correction of deficiencies to these dams may require as much as $100 million.

Another project for which planning was first authorized in 1971, is the Navajo-Gallup Pipeline. This pipeline would serve the eastern part of the Navajo Nation, Window Rock, AZ and the city of Gallup, NM -- a widespread area where groundwater is not available in quality or quantity. Planning assistance for the Pipeline is critical at this time to answer questions raised by constraints on water availability dictated by the Endangered Species Act in the San Juan River Basin. Additionally, the Navajo Nation requires research and planning to determine solutions to the other water needs of the Navajo Nation.

FISCAL YEAR 1997 FUNDING NEED

The Navajo Nation is seeking continued assistance from the Bureau of Reclamation and the Department of Interior to actively manage the future development of its water resources and these requests reflect necessary funding for the following high priority programs.

1. Indian Dam Safety Technical Assistance ($680,000)

   In 1994, Congress enacted the Indian Dam Safety Act (P.L. 103-302), providing for the maintenance of dams on Indian lands. This Act (Section 4(g)) authorizes the Secretary of the Interior to "obtain technical assistance on a non-reimbursable basis from other department and agencies." The Navajo Nation strongly recommends that the Subcommittee provide funding to the Bureau of Reclamation for this program, since annual appropriations funded under the Bureau of Indian Affairs do not come close to meeting the needs of the Navajo Nation.

   The Navajo Nation Safety of Dams program was created to coordinate with the BOR and the BIA all activities related to the completion of structural improvements to hazardous dams. This program will continue the necessary actions and improvements to address the safety deficiencies identified through the safety evaluations of existing dams project.

2. Drought Contingency and Water Management Plan ($500,000)

   In 1997, the Navajo Nation and Bureau of Reclamation will begin Phase 3 of an ongoing project (started in 1995) to develop detailed plans and recommendations for a drought response and rural water supply plan, and develop a database and data base management system for groundwater monitoring within the Navajo government. Phase 1 identified issues that water management planning efforts needed to address. Phase 2 will develop public consensus for the proposed planning effort.

3. Technical Studies in the San Juan and Little Colorado River Basins ($400,000)

   Funding is requested from this account to evaluate water development projects on the Navajo Nation. For example, the development of available water in the San Juan River Basin is being severely constrained by the Endangered Species Act. This Act has caused major problems for both Navajo and non-Indian water development projects in the San Juan Basin, including the Navajo Indian Irrigation Project and the proposed Navajo-Gallup Pipeline. Because the Act complicates all San Juan Basin water development and water rights discussions, there is great need for increased funding for technical studies in the Basin.

4. Planning Activities for the Navajo-Gallup Pipeline Project ($400,000)

   Existing groundwater supplies in northwest New Mexico and northeastern Arizona are inadequate to meet expected future demands. This funding for preliminary studies for the San Juan River Gallup-Navajo Pipeline Supply Project-will assist in the planning of a water pipeline to serve communities in the eastern portion of the Navajo Nation and the City of Gallup, NM. Obstacles created by the Endangered Species Act seriously jeopardizes the completion of this project.

CONCLUSION

On all Indian reservations water is life. The Navajo Nation hopes that the Members of this Subcommittee understand the importance of water resource development and protection to not only the Navajo people, but also to the entire Southwest. The Navajo Nation appreciates the support of the Subcommittee. Detailed justification sheets on these programs will be provided to Subcommittee staff shortly.

PREPARED STATEMENT OF THE COUNCIL FOR CHEMICAL RESEARCH

CCR'S VIEWS ON FUNDING FOR DOE BASIC ENERGY SCIENCES

- The members of the Council for Chemical Research (CCR) are companies, universities, and government research laboratories that conduct research in chemical sciences and engineering. They are represented in CCR by vice presidents, directors, deans, and chairs with primary responsibility for chemical R&D.

- CCR wishes thank this subcommittee for its leadership in support of BES for FY 96.
- We believe that basic energy research is an essential investment in our Nation's future security.
- We strongly believe that the government's investment in BES must be sustained at a level no lower than FY 96, and that it should maintain pace with the cost of living.
- As the Congress struggles to rein in our national budget deficit, tough choices will have to be made. While energy's importance may be understood by the American public, the role of energy research is not easily understood.
- Your unwavering commitment to the longer view is essential. To assist you, we promise to help substantiate the relevance of energy research, to articulate the public benefits of the nation's investment in it, and to suggest and evaluate the impacts of alternatives in the context of real budget parameters.

Mr. Chairman and Members of the Subcommittee:

The Council for Chemical Research (CCR) is an organization whose members are companies, universities, and government laboratories that conduct research in chemical sciences and engineering. CCR is pleased to submit these remarks regarding the Basic Energy Sciences (BES) program of the U.S. Department of Energy (DOE) for consideration as you craft the fiscal year 1997 appropriations for energy and water development.

BES advances the information base for the Nation's energy technology development in ways that strengthen our science and engineering resources. In essence, the BES goal is to make energy and energy-intensive processes cleaner, cheaper, faster, and better. From CCR's own multi-sector perspective, BES programs bring the best talents of our national laboratories, academia, and industry to bear on the task of achieving its goal. We are most familiar with the chemical and materials research activities within BES. The Chemical Sciences Division oversees a broad range of basic research in molecular, atomic, and chemical engineering sciences necessary to improve existing energy technologies and development of new ones. The Materials Sciences Division supports fundamental scientific research into materials and their properties. Both support national user facilities that enable experiments in their areas of responsibility.

We wish to begin our testimony by thanking this Subcommittee for its leadership in support of BES for fiscal year 1996. We heartily agree that this research is an essential part of the national energy program and represents progress that must be continued. Continuity in research is vital, and the level of funding provided has assured that to date.

We are also aware that efforts to deal with the Nation's budget deficit will necessitate increasing scrutiny of all programs categorized as domestic and discretionary. The absence of a detailed budget proposal to which this statement can respond is evidence of the turmoil that already surround these efforts. **Yet, we strongly believe that the government's investment in Basic Energy Sciences must be sustained at a level no lower than the fiscal year 1996 appropriation, and that it should maintain pace with the cost of living.**

We understand that this may be easier said than done in a time when the decisions you must make will only get harder. We want to help, beginning with this statement, by substantiating the relevance of energy research, articulating the public benefit of the nation's investment in it, and helping to incorporate "good science" into the policy-making process. Our perspectives are drawn from our knowledge as scientists and researchers, our experiences as decision-makers in industry, government, and academia, and our interests as citizens in the well being of our Nation. We hope that this effort opens an ongoing dialogue with you. We want to be there with you for the tough decisions, to help you identify and assess alternatives that enable you to establish realistic budget goals that sustain our science and technology base.

Why Invest In Energy Research

In deciding government's support for any activity, the purpose for the government's involvement must be clear. While there is much discussion about the mission of the Department of Energy, we believe that, fundamentally, the "E" in DOE has consistently stood for energy security. We read with interest the final report of the Secretary of Energy's Task Force on Strategic Energy Research and Development (the "Yergin report") which was published last June. This report summarizes important trends, including:

- Energy is fundamental to the ability of industrial societies to function, and the demand for energy is growing world-wide
- The U.S. is a declining oil producer that continues to be heavily dependent on foreign oil. The world oil market is stressed and continues to be politically vulnerable
- DOE's investment in energy R&D is only 0.5% of America's annual energy bill
- These R&D activities have contributed a great deal to the energy successes of the last 15 years, while contributing to our standard of living, new products and processes, new jobs, and new opportunities.

We agree with the view expressed in the Yergin report that energy is so central to the vitality of our dynamic country that it must be one of our top national issues. Research sponsored by BES yields useful knowledge and better knowledge systems that are aimed at energy problems but yield a much broader benefit to the nation. Within DOE, BES supports efforts to replace or extend energy supplies and improve and enhance the environment. Through its funding to universities, BES sustains research activities that provide knowledge products and a training ground for the science and engineering workforce to sustain our future. By interacting with industry, BES gains an understanding of needs and market considerations that help shape its research strategies. Through user facilities, BES supports the DOE mission and all of its research constituencies.

Federal support for R&D is most strongly justified when the R&D serves national interests not adequately addressed by market action alone. But that should not mean that the benefits of government-sponsored research should not be market relevant. To paraphrase the Galvin report on the future of the national laboratories, one of the beauties of basic research is the potential to have a transforming, yet unknowable impact. Two cases in point:

- A new process now in the marketplace enables more efficient production of plastics that are more energy efficient than previously possible. The enabling science was conducted at Northwestern University under a project funded by BES' Division of Chemical Sciences. The plastics are currently being used on the front fascia of Pontiac Bonnevilles, heavy-duty extension cords, and the black foam insulation in your air conditioner, among other products.

- Through BES-sponsored research, processes that reduce toxic and radioactive waste were discovered. These processes, which are used in applications such as removal of iron contaminants in the production of silicon wafers, are now being commercialized by three companies. One of the companies was formed with financial support from the state of Illinois and, to date has 25 employees and annual revenues of $4 million.

- A new solder alloy was discovered as a result of BES-supported research that enables better and safer industrial soldering. This solder solved long-standing limitations of soldering materials -- which were primarily lead (workable but toxic) and tin-silver (not toxic but less workable). One application: non-toxic solder paste for state-of-the-art electronics packaging. The new solder is non-toxic and workable.

- The Buckminsterfullerene is a new form of carbon that was developed and characterized as a result of research supported by BES. There is great excitement about the potential of the "Buckeyball", whose properties include absorbency and superconductivity. As profiled in a recent NOVA program on PBS, there are many small start-up companies racing to find applications and markets for the Buckyball.

These "victories" are significant because they exemplify the achievement of the better, faster, cheaper, cleaner objectives that BES strives for to enhance our energy security. They may not be as dramatic as some success stories. Research is similar to legislation in that you may do a lot of it, but only a small percentage makes the front page. But, this is how basic research works -- through thousands of insights, new directions, new phenomena, new principles, materials and processes that are the return on the Nation's energy research investment.

What's at Stake

The threats to our energy security include energy supply disruption and shortage, loss of competitive capability, and diminished quality of life. These threats bespeak urgency and crisis. But, basic energy research involves long time horizons and does not lend itself to characterization in terms of quadrillion BTUs contributed. It represents future options and preparedness. Commitment and continuity are vitally important to getting the return on the investment in this research -- and to sustaining the infrastructure that enables it.

It takes a lot of effort to understand and appreciate what is contributed by basic energy research and what would be lost if the research were not sustained.

BES continually strives to improve understanding and communicate the benefits of its activities. It assesses progress quantitatively in terms of the number of scientists supported, the number of students earning advanced degrees, the number of researchers who access the user facilities, the number of articles published in peer-reviewed journals, the number of awards and citations for funded researchers and their work, and the number of CRADAs, inventions, and patents that result from supported activities. BES also strives to articulate qualitative benefits by looking at success stories, the quality of the new knowledge that is gained, the usefulness of the technology developed, and the longer-term benefits to society. Data for these metrics is readily available but not included here in the interest of space.

While these measures are meaningful indicators of what is at stake within the overall context of federal research, the real difficulty in making the case for R&D occurs when it is being measured against programs that the public understands more readily. In the absence of a relevant crisis that engages the broader public (such as the gas lines of the early 1970's), one of the challenges is to show how many "small" victories, future "unknowables", and a strong science and technology resource base add up to a competitive public benefit.

Much is at stake as the Congress struggles with the appropriations for FY 97 and beyond. Sustaining support for BES will require researchers to more effectively communicate the relevance of what we do to those who are less in tune with research and to take responsibility for helping to assure that spending decision reflect the best interests of the nation. and it will require an unwavering commitment by congressional leaders to the longer view.

Conclusions

We believe that a strong case can be made for sustaining the level of support for the Basic Energy Sciences program in real dollars, but that it will take substantial commitment and leadership on all our parts to successfully advocate for the future when a painful pinch is being felt today.

We, as scientists, must facilitate understanding and communication of the fact that, as an investment, basic research cannot appropriately be treated as a current expense. Because of the long-term payout, the impact of cuts made now might not be felt for a decade, but would have crippling consequences after that in terms of lost scientific knowledge, infrastructure, and human capital.

You, as legislators, must stand firm in your commitment to the future.

We pledge to do our part to carry the message forward and to assist you in this endeavor.

Thank you very much, and I will be pleased to answer any questions you may have.

> The Council for Chemical Research is a scientific and educational association dedicated to promoting closer research linkages among industry, government, and academia. The Council's members are represented by department heads from 157 leading U.S. universities, and vice presidents and directors of research from 36 major industrial firms and nine government laboratories. Chemical R&D expenditures accounted for by CCR members amount to $7 billion annually, approximately 75% of the comparable U.S. total.

PREPARED STATEMENT OF MARCUS H. VOTH, DIRECTOR, PENNSYLVANIA STATE UNIVERSITY, CHAIRMAN, UNIVERSITY REACTOR SUPPORT COMMITTEE, NATIONAL ORGANIZATION OF TEST, RESEARCH, AND TRAINING REACTORS

INTRODUCTION AND SUMMARY

This testimony is submitted by Marcus H. Voth, Director of the Radiation Science and Engineering Center, The Pennsylvania State University and Chairman of the University Reactor Support Committee of the National Organization of Test, Research, and Training Reactors (TRTR). TRTR is made up of the directors and managers of US research and test reactors, including 34 currently operating university research reactors (URRs) on 32 campuses in 25 states.

On behalf of TRTR, we wish to thank this subcommittee for its past vision and leadership. During the 1980's, URRs were permanently shut down at the rate of two per year. With the support of this committee, $1M per year was provided for FY90 through FY93 to upgrade URR instrumentation. It is noteworthy that there were no additional shutdowns during these years. However, this important support was not appropriated from FY94 through FY96 during which time three additional URRs were permanently shut down. We ask that Congress take the positive steps proposed in this testimony to stop this trend.

This testimony supports the following conclusions:

- **University reactors are valuable national resources; they are the source of neutrons for research in such diverse areas as medical isotopes, human health, life sciences, environmental protection, advanced materials, and food science.**
- **University reactors provide highly qualified, technically knowledgeable personnel needed by national laboratories, the federal government, academia, and private industry for basic and applied research critical to US technological competitiveness.**
- **The National Academy of Sciences recommends federal support to maintain, refurbish, modernize and upgrade existing URRs, a much less costly alternative than replacing them. We believe that this should be done by first restoring programs that were previously funded for all URRs and second to create URR Centers of Excellence for the more research-prolific programs.**
- **The "University nuclear science and support" line item in the FY96 budget was $3.5M, a significant reduction from funding in previous years. We respectfully request and submit justification for restoring the FY90 through FY93 level of funding which is equivalent to $12.2M per year.**

MISSION AND CONTRIBUTIONS OF URRs

University research reactors in the United States form a fundamental and vital component in a broad spectrum of our national research and education infrastructure critical to such national priorities as health care, education, environment, and technology transfer. They are a source of neutrons for **multidisciplinary research** efforts resulting in contributions to the fields of physics, chemistry, biology, medicine, epidemiology, archeology, environmental sciences, material sciences, fluid mechanics, geology, energy production and many other areas.

In **education**, URRs are used for laboratory instruction in all these fields with emphasis on radiation measurement, reactor science and engineering, and applications of radiological techniques. Many of the reactors serve as centers for precollege education programs offered for high school students and teachers who come to the reactor for instructional programs and research. URRs also form the base for education of future scientists and engineers in the above mentioned broad range of disciplines that use reactor based techniques to solve unique problems.

Compared to a **national user facility**, URRs often provide a superior environment for graduate research because of less rigid facility scheduling, enhanced flexibility, lower operating costs, and available local supporting capabilities. They are a rich resource for radiation sciences research, and can serve as a development base for new techniques and advanced instrumentation to be used at national centers.

The **professions entered** by URR users are as diverse as their research disciplines. Many who study biology, chemistry, epidemiology, and radiological health may enter professions in medicine and human health. Others may enter professions in advanced materials research and development, energy resources development and production, and environmental programs. Education and research experience received at URRs benefit future employers including government agencies, national laboratories, medical practice, academia, and private industry; this is one of the most effective and efficient forms of **technology transfer**.

The missions of URRs and **nuclear engineering education** are frequently confused as is their relationship to the commercial nuclear power industry. Nuclear engineering education involves the study of radiation science, including the operation of nuclear reactors. URRs serve as radiation sources and laboratory facilities for nuclear engineering students. However, nuclear engineering is only one of the numerous disciplines using URR facilities. While the commercial power industry employs nuclear engineers, the majority of graduates find employment in other sectors. The need for state-of-the-art URR facilities transcends the status of nuclear power development through the numerous other applications for radiation science. For example, engineers and scientists educated in U.S. nuclear engineering programs and trained at university research reactors provide vital expertise in international nuclear safety. These engineers and scientists promote **nuclear safety worldwide**, reduce **national security threats**, and maintain the U.S. lead role in **international nuclear policy**.

University research reactors are used for **environmental studies** in areas such as acid rain and pollution dispersion. They also contribute to nuclear power technology, the only demonstrated energy source which assures sustainable development of our planet while preserving our reserves of fossil fuels for consumer and agricultural product feed stocks rather than combustion fuels. The **nuclear test ban treaty verification** is also being supported. Remote radiation monitoring instrumentation able to sense clandestine weapons testing (components of a global atmospheric radionuclide detection system) is being developed and tested at a URR facility.

With the attention currently focused on national health care, it is appropriate to address URR **contributions to medicine**.

- Many URRs contribute to medicine through basic research in the life sciences such as identifying molecular structures and interactions. They also produce and investigate applications of radioisotopes.

- One URR (the University of Missouri) is high enough in power to produce significant quantities of a wide variety of radioisotopes for medical application and life sciences research. University researchers there study new ways to use radioisotopes for therapy of cancer and other ailments as well as using them to answer important basic questions about living organisms. The radioisotopes from this URR also support similar research across the country.

- Another URR (Massachusetts Institute of Technology) is investigating the direct neutron irradiation of deep-seated melanoma (skin cancer) and brain tumors that have taken up a boronated drug. This treatment is termed Boron Neutron Capture Therapy (BNCT). Patient treatments and animal studies have suggested that BNCT may be effective in combating these diseases. In contrast, these diseases are invariably fatal when treated with conventional therapies.

- Neutrons and radioactive isotopes are such common research tools that today well over half of the new drugs approved by the FDA are developed using radiation based science and technology. Many of the 10,000,000 nuclear medicine tests done annually eliminate the need for exploratory surgery, reducing both the pain and the cost of treatment while improving the quality of the diagnosis.

URR FUNDING NEEDS

Most URRs were constructed in the late 50s and early 60s with major federal financing. Since then, operating costs have been borne primarily by the host institutions with relatively little funding available for major maintenance, equipment replacement, or upgrades. Half of the URRs commissioned in the United States have been permanently shut down. Foreign facilities have taken over the lead in technological competitiveness.

A 1988 report by the National Academy of Sciences entitled **University Research Reactors in the United States-their Role and Value**, examines the role of URRs in the areas of research, education, and service, especially in light of the decreasing numbers of reactors. The report concludes that "Policies that will limit closures and encourage modernization of a substantial subset of existing reactors, sufficient in numbers and types to meet national and academic needs for research, education and service are clearly in the national interest." The report recommends an annual level of federal funding for URRs of $20M (in 1988 dollars) but in fact identified an overall need for approximately $35M per year.

A report to Congress in response to the Energy Policy Act of 1992 substantiates the Academy recommendation. Specific needs totaling nearly $80M were identified. Upon analyzing the data, the report concluded that $6M per year be appropriated for five years, starting in FY96. (Reference: Secretary of Energy Hazel O'Leary to Vice President Al Gore, May 19, 1994.) While the special congressional appropriation of $1M per year for FY90 through FY93 met some specific instrumentation needs, it was far short of that required for significant upgrades and new capabilities. Appropriations should be expanded to keep pace with the rate of obsolescence.

We realize that in the nation's current fiscal environment it is unrealistic to expect the full level of support recommended by these studies. However, it is in the nation's best long term interest to take two important steps at this time. First, those programs supporting all URRs through "University nuclear science and support" in the Department of Energy, Office of Nuclear Energy, Science and Technology budget should be restored to previous funding levels. Second, consideration should be given to new sources of funding to create five to seven Centers of Excellence at the nation's more productive research URRs through a peer review process. The Center of Excellence concept was presented in oral testimony before the House Appropriations Subcommittee on Energy and Water Development by Professor Neil Todreas of the Massachusetts Institute of Technology on February 29, 1996, and will not be repeated here.

The "University nuclear science and support" funding has traditionally provided support for both academic programs in Nuclear Engineering/Radiation Science Technology and for University Research Reactor facilities. This testimony only addresses the URR facility portion of the budget line item; the academic programs are supported by testimony of another group, the Nuclear Engineering Department Heads Organization (NEDHO). From FY90 through FY93 these combined programs were funded at over $10M per year. The total funding was stepped down to $3.5M in FY96. The cost of restoring programs in FY97 to the FY90 through FY93 level, compared to the appropriated FY96 level, is as follows:

University Nuclear Science and Support Needs (in millions)

	FY97 Request	FY96 Appropriation
Nuclear Engineering/Radiation Science Technology		
Research Grants	$5.0	$0.0
Fellowships	1.0	0.0
Utility Match Grants	0.8	0.8
Subtotal	$6.4	$0.8
University Research Reactor Facilities		
Reactor Fuel	$3.8	$2.2
Reactor Sharing	0.6	0.5
Reactor Instrumentation	1.0	0.0
Subtotal	$5.4	$2.7
TOTAL	$12.2	$3.5

Each of these URR needs is further explained as follows.

Reactor Fuel - Since the Atoms for Peace program when the federal government was encouraging universities to join in developing new knowledge and applications of radiation science, the fuel cycle costs for university reactors were provided by the federal government. Included is the loan of uranium, fuel fabrication, shipping of new and irradiated fuel, and acceptance of the spent fuel elements. The minimum fuel replacement costs are $2.2M per year. Programs are in progress to improve fuel cycle economics by designing extended life fuel elements. There is also interest in removing from service fuel with over two decades of operation. In addition, the government has taken the position that the use of highly enriched uranium (HEU) at URRs (and throughout the world) should be terminated whenever technically feasible as funds are available. HEU conversions have been progressing on a systematic basis. The cost of all these URR fuel-related issues totals $3.8M per year.

Reactor Sharing - The reactor sharing program must rate among the most cost-effective and successful expenditures of federal funds, as it makes geographically distributed URRs effectively available to many users as unique regional resources. This program allows faculty and students from other universities, community colleges, high schools, and junior high schools to utilize university reactors. This has led to research projects and lines of inquiry which might have never occurred had there not been a mechanism to access these facilities. This is typically funded at $0.6M but justified costs routinely exceed the funds available. Furthermore, funds are not available for host institution users under the existing program, a provision that should be changed. To cover these additional needs, the minimum funding needed for an effective reactor sharing program is $2.0M per year. In an attempt to keep within past levels of expenditures, however, we are not asking that the expansion of the program be done at this time, leaving the recommended level of funding at $0.6M per year.

Reactor Instrumentation - The cost to maintain university reactors and associated laboratories as state of the art teaching and research facilities is substantial. These facilities, initially constructed with major federal support, have aged without significant investment beyond the basic operating needs. Foreign facilities have been supported at much higher levels and have in turn taken over the technological competitiveness in many areas. Upgrading existing facilities is much more cost effective than replacing them. A relatively small investment in new equipment proved to be very cost-effective during FY90 through FY93 when an annual pool of $1.0M was provided. We are not pursuing the $20M per year recommended by the National Academy of Sciences report or the $6M per year recommended by the Secretary of the Department of Energy at this time for two reasons. First, the proposed Centers of Excellence will meet some of the identified needs. Second we are simply asking that programs be restored to previous levels and are not seeking major increases in light of federal fiscal pressures. Therefore, the instrumentation program providing a pool for instrumentation upgrades at all URRs is recommended to be restored at $1.0M per year.

The importance of initiatives such as those described above is that they send a powerful message to administrators in the academic community that national leaders do see a need for URRs and are taking steps to improve the situation. **Since no such funding was appropriated from FY94 through FY96 it is particularly important for academic administrators to see tangible evidence of significant, timely support to maintain their confidence in the federal government's interest in a healthy infrastructure of URR capabilities.**

CONCLUSION

University research reactors have made major contributions and continue to actively support national priorities such as health care, education, environment, and technology transfer. However, these facilities are aging and require fiscal support if they are to remain in operation, continue to be capable of cutting-edge research, and compete technologically with foreign research reactors. By far the most cost effective approach to optimizing our nation's research reactor capability is to maintain, refurbish, modernize, and upgrade our existing facilities. This should be accomplished with a total of $12.2M for "University nuclear science and support" in the DOE-NEST budget of which $5.4M supports URR facilities and $6.8M supports academic programs. In addition, Centers of Excellence should be created at the nation's most research-intensive URRs under a separate initiative.

PREPARED STATEMENT OF DAVID P. BECK, PH.D. PRESIDENT, CORIELL INSTITUTE

Mr. Chairman and Members of the Subcommittee, I appreciate the opportunity to present to you this statement on the wisdom of establishing a National Human Cell Repository Center, and the importance of such a repository as a logical step in advancing cutting-edge biomedical research in the Department of Energy's (DOE) Biological and Environmental Research Program at the Los Alamos, Oakridge and Lawrence Livermore laboratories. There is a critical and increasing need for a contamination-free supply of human cells in high level research into genetic disorders, cancer, heart disease, and other serious human diseases.

As a scientist and President of Coriell Institute for Medical Research, it is my job to oversee the acquisition, characterization, cataloguing and shipment of human cell cultures to the DOE and NIH centers for genome research and other high level research facilities around the United States and the world. Coriell Institute is the world's largest provider of such cell cultures.

By way of background, Coriell Institute was founded in 1953 by Dr. Lewis Coriell, a scientist who developed pioneering techniques for growing human cells in culture and thus permitting their use in scientific research. Early on, Coriell technology was crucial in growing the cultures used in development of the Salk Polio Vaccine. Today, scientists throughout the world depend on Coriell cell cultures for use in disease research, and many research advances have depended directly on the cultures supplied by Coriell.

Biomedical science today is making rapid advances in both diagnostic and therapeutic techniques. For example, molecular antibiotics are being developed which can find and destroy the genes of an infectious organism in an utterly specific fashion, and gene-based therapeutic techniques are being tested through clinical trials for the treatment of such diseases as cancer. In short, we are on the proper scientific pathways which will one day make it possible to eliminate such diseases as diabetes and cystic fibrosis and other diseases which stem from defective genes.

Today, the problems associated with sustaining progress in advanced disease research stem from the fact that the volume of cells needed is growing and will continue to grow as the scientific community extends molecular genetic technology into new areas such as mental illness. Specifically, this means that of the 4,000 plus diseases known to exist, only about 1,000 are banked and available as cell cultures. In order to procure and catalogue cell cultures for the remaining 3,000 diseases, a dedicated human cell repository is essential.

Mr. Chairman, Coriell Institute has many responsibilities in its role as the nation's premier supplier of cell cultures. Of particular note is the role of Coriell Institute, in response to demands from the research community, in acquiring collections of specific cells for research into specific diseases. A case in point is one where, over the past year, Coriell has been building a collection of cells from breast cancer patients. Our scientists have been involved in the search for a mammary tumor virus, and have recently developed a new technology for whole genome amplification to make genetic material available from tumors from which cell lines are difficult to grow. This technique allows for the tracing of family history of the disease.

The breast cancer initiative is a good illustration of the ways in which new frontiers can be crossed in studying diseases. It is also a telling illustration of a serious problem in advanced research -- specifically, the increasing demand for cell cultures and the related services which support high level research.

Mr. Chairman, as the individual responsible for the largest human cell repository in the world, I can tell you that a National Human Cell Repository Center is absolutely an important next step as we look to the future of where we are going in high level disease research. I believe, as do others in the field, that a national center which provides cells and genetic material to researchers around the country and abroad will greatly enhance the quality of medical research. As NIH Director Harold Varmus recently testified, "we foresee new means to prevent disease, and we anticipate the development of novel therapies for the next century, based on the delivery of genes to ailing cells, and drug design guided by molecular structures."

Novel therapies for the next century is the goal in disease research as NIH Director Varmus has pointed out. To accomplish that goal requires a consistent and reliable supply of cell cultures, the space to store such cultures and the human skill and equipment to support a state-of-the-art facility.

It is my belief that the establishment of a National Human Cell Repository Center will provide a critical component in support of disease research in both the Federal and non-Federal sectors. The Department of Energy has a long-standing interest in examining health effects of environmental factors; its founding of the Human Genome Project set in motion much of the exciting activity we see today in genetics research. In support of this project, Coriell Institute, during the past five years, has distributed hundreds of shipments of cell lines to DOE labs in Los Alamos, NM; Lawrence Livermore Laboratory in California, and Oakridge in Tennessee. While such activity has been important, it will be insufficient for future efforts in genetic research, which is why we need a National Repository.

Mr. Chairman, after studying the needs for and potential benefits of any national repository, I believe that establishing such a facility from the ground up would be excessively expensive, and require too much time in planning and execution. However, a National Center can be built by simply adding to an existing resource which is positioned to supply research demands into the next century. That resource is Coriell Institute

Given Coriell's position as the world's largest human cell repository and its interaction with the DOE and NIH labs, it makes perfect sense to establish a National Center in a public-private partnership fashion, particularly given the Federal Government's long-standing and continued support for medical research. By making an investment in a National Human Cell Repository Center, the Federal Government can help to ensure the availability of human cells for disease research scientists throughout the United States and the world.

Mr. Chairman, Coriell Institute already has a plan for establishment of a National Repository, and we are prepared to move forward immediately. In summary, it is my belief that Federal investment toward this end will produce tremendous benefits and that, considering the cost of disease to this country and the potential for missed research opportunities if we do not move forward, we cannot afford not to establish a National Cell Repository.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) is the national service organization representing the interests of over 2,000 municipal and other state and locally owned utilities throughout the United States. Collectively, public power utilities deliver electric energy to one of every seven U.S. electric consumers (about 35 million people), serving some of the nation's largest cities. The majority of APPA's member systems are located in small and medium-sized communities in every state except Hawaii.

APPA member systems appreciate the opportunity to submit this testimony outlining our FY 1997 appropriations priorities within your Subcommittee's jurisdiction.

EMF Research

Electric and magnetic fields (EMF) refers to the electric field caused by voltage and the magnetic field surrounding a current-carrying conductor. Concerns about possible adverse human health effects from EMF exposure have continued since the early 1970s. In response to public questions about EMF, Congress created a new EMF Research and Public Information Dissemination Program (better known as the "EMF RAPID" program) in Section 2118 of the 1992 Energy Policy Act (EPACT). This legislation authorized a five-year, $65 million health-based research effort to determine the effects of EMF, to demonstrate EMF mitigation technologies and to disseminate information to the public. Fifty percent of the funding for this program comes from nonfederal sources including electric utilities, electric equipment manufacturers and other interested parties. APPA's member systems have met their contribution goals for each of the past two appropriations cycles. In 1995, for example, 886 public power systems provided $792,000 in voluntary contributions to EMF RAPID.

EMF RAPID was intended by Congress to be a five-year program that was to begin in FY 1993 and sunset at the end of FY 1997 under the provisions of EPACT, Section 2118. However, because FY 1993 appropriations preceded the signing into law of EPACT, APPA member systems and other interested parties plan to seek a one-year extension of the program through FY 1998. This extension is necessary in order to meet Congress' intent, to complete ongoing research projects and to provide the program the maximum non-federal contributions called for under the law.

The Administration has recommended $4 million for the EMF RAPID program in FY 1997. APPA supports this request as well as the authorization for the ongoing EMF research program, for which the Administration is seeking an additional $4 million to conduct studies primarily at DOE labs. In addition, we urge this subcommittee's support of a one-year extension of EMF RAPID.

Renewable Energy Programs

Due to budget constraints, overall funding for DOE renewable programs was reduced by 29 percent in FY 1996. APPA believes it is important to continue development and commercialization of clean, renewable energy resources as we face the prospect of increased competition in the electricity marketplace. A recent study by the Investor Responsibility Research Center (IRRC), an independent, nonprofit firm providing research and analysis on business and public policy issues, shows renewable technologies are growing internationally but are in a "protracted slump" in the United States. Two of the most significant barriers to greater renewable energy use are cost and lack of demonstrated experience. Because of the requirement to supply electricity to customers on demand, with high reliability at a reasonable cost, electric utilities often are conservative when evaluating new technologies. Evolving deregulation, coupled with stable fuel prices, now adds a further challenge to greater adoption of relatively unproved renewable technologies.

We applaud the Administration's emphasis on DOE energy efficiency and renewable programs in its funding request for FY 1997 and ask that this Subcommittee work to ensure that renewable energy technologies remain a part of the full range of resource options available to our nation's electric utilities.

Renewable Energy Production Incentive Program (REPI)

APPA urges this subcommittee's continued support for REPI, also authorized by EPACT, in Section 1212, at the level requested by Administration for FY 1997, $3.489 million. REPI permits DOE to make direct payments to publicly and cooperatively owned electric utilities at the rate of up to 1.5 cents/kWh of electricity generated from solar, wind, certain geothermal and biomass electric projects. Because projects of this nature often require a long lead time for planning and construction it is imperative that stable and predictable funding be provided.

REPI was established to ensure equity between investor-owned utilities who utilize renewable energy tax credit and production payments and publicly and cooperatively owned electric utilities who are unable to do so. DOE recently produced final rules to implement REPI and made the first payments under the program to four state-owned and three municipally-owned facilities. A 1993 APPA member survey indicated that 60 utilities in 32 states are interested in participating in the REPI program.

Production payments to utilities are an excellent market-based method to spur greater interest in renewables. They fit well with DOE's emphasis on market-led commercialization.

Climate Challenge Program

The Climate Challenge program is a joint initiative of the electric utility industry and DOE. It emphasizes voluntary, cost-effective measures to reduce, avoid or sequester greenhouse gas emissions to 1990 levels. Through voluntary agreements, public power utilities and other electric utilities have committed to reduce emissions by over 43 million metric tons of carbon equivalent in the year 2000. In addition to demonstrating that important environmental objectives can be achieved through voluntary efforts, the Climate Challenge program contributes to a strong U.S. position in international climate change negotiations.

APPA supports the Administration's budget request of $1 million to continue the important work of the Climate Challenge program.

Storage for High-Level Nuclear Waste

The Nuclear Waste Policy Act of 1982 requires DOE to construct and operate a permanent storage facility for high-level nuclear waste by 1998. Utility customers already have committed approximately $12 billion to the Nuclear Waste Fund established by the Act.

Despite this fact, in testimony before Congress, DOE estimated a permanent storage facility at Yucca Mountain in Nevada will not be in operation until at least 2015. Many of our nation's 109 nuclear plants will run out of on-site storage capacity long before this target date, resulting in increased costs for new on-site storage facilities or possible power shortages and increased rates due to inadequate storage for spent fuel.

We support the Administration's budget request of $339.3 million to continue testing at Yucca Mountain in order to move toward establishing an interim facility by 1998 and continued progress toward a central permanent storage facility. Funds were reserved in the FY 1996 budget for this purpose.

Advanced Hydropower Turbine Program

The Advanced Hydropower Turbine Program is a joint industry/government cost-share effort to develop a new, improved hydroelectric turbine superior in its ability to protect fish and aquatic habitat and operate efficiently over a wide range of flow levels.

During the next decade over100 hydroelectric projects will seek new licenses from the Federal Energy Regulatory Commission (FERC). Many of these projects were originally licensed over 50 years ago. Newly imposed licensing conditions can cost hydro projects 10 to 15 percent of power generation. A new, improved turbine could help assure any environmental conditions imposed at relicensing in the form of new conditioning, fish passages or reduced flows are not accomplished at the expense of energy production. This is particularly important due to the increasingly competitive electric market in which utilities operate today. Flow levels will affect the economics of each of these projects and many will be unable to compete if the current trend toward flow reductions continues.

The Advanced Hydropower Turbine Program is planned in three phases. We commend Congress for appropriating $1 million to complete Phase One, design development, in FY 1996. The hydropower industry provided $500,000 as its Phase I nonfederal share. The Administration's request of $1 million for FY 1997 is insufficient to adequately move this program forward. APPA joins with others in the hydroelectric industry in requesting the full $15 million required by DOE for Phase Two, model design and testing. This appropriation will enable DOE to move quickly to Phase Three, development of the final prototype, in the next fiscal year, and placement of the prototype in many of the hydroelectric projects which will be up for relicensing after the year 2000.

Federal Power Marketing Administrations (PMAs)

We appreciate this subcommittee's continued support of the federal power program.

APPA supports increased efficiency in PMA operations. However, we believe Congress also must recognize that federal power sales cover all PMA operating expenses plus all Corps of Engineers and Bureau of Reclamation operations, maintenance, replacement and rehabilitation expenses for hydropower and repayment of the federal investment in the construction of the projects. Power sales also support many nonpower-related expenses associated with these projects. Budget "scoring" rules aside, because the PMAs charge cost-based rates, reducing discretionary appropriations to PMAs actually saves the government nothing. As appropriations are lowered, power rates fall accordingly thus reducing mandatory receipts on the other side of the ledger. The Administration has requested reductions in appropriations to the PMAs for FY 1997. We believe such action is short-sighted and ask this Subcommittee's careful review of PMA appropriations.

Corps of Engineers and Bureau of Reclamation

More than 500 public power systems purchase power generated at U.S. Army Corps of Engineers and Bureau of Reclamation dams and marketed by the five PMAs. APPA asks this subcommittee's support in assuring adequate appropriations are provided to the Corps and Bureau for operation, maintenance, major rehabilitation, upgrading and replacement of the equipment needed at the powerhouses. The Administration has requested reductions in several of these accounts for FY 1997. Unfortunately, budget realities in the past often have required the Corps and Bureau to defer upgrades and maintenance resulting in efficiency losses affecting hydropower production.

Discussions currently are ongoing in various project areas between customers and the operating agencies seeking alternatives to relieve the stress caused by the spiraling effects of deferred maintenance. We will keep this subcommittee apprised of our progress in this regard and look forward to working with you and the authorizing committees in seeking remedies to increase efficiencies and deal with ongoing maintenance problems.

Bureau of Reclamation Dam Safety Program

The Administration is seeking $59.2 million to operate the Bureau of Recreation's Dam Safety Program in FY 1997, a slight reduction from last year. APPA asks that this Subcommittee provide adequate funding to continue this important program at the level necessary to assure that dams are operated and maintained in a safe manner. The objective of the Bureau of Reclamation's Dam Safety Program is to quickly identify those facilities that pose an increased threat to the public and to expedite corrective action decisions and safeguard the public and associated resources.

Tennessee Valley Authority (TVA)

APPA supports the Administration's request of $120 million for TVA in FY 1997. This Subcommittee historically has provided funding for TVA's appropriated programs because they provide benefits not only to the TVA region but to the nation as a whole. These funds are separate from the self-financed electric power program and are used to provide navigation, flood control, management and protection of land, water and wildlife resources, business development and job creation.

These TVA programs are part of a national effort to promote sound economic development and to protect our natural resources. Other Federal agencies receive appropriations to carry out similar programs in other parts of the country . Therefore, the funding you provide for the Tennessee Valley is not special treatment and should be continued.

TVA Chairman Craven Crowell and his colleagues have done an outstanding job of maintaining stable electric rates by skillful management of power revenues and personnel. TVA's appropriated programs are also monitored continuously for efficiencies and effectiveness with the same level of scrutiny that has prepared the power program for a competitive utility industry.

PREPARED STATEMENT OF ARDEN L. BEMENT, JR., DIRECTOR, MIDWEST SUPERCONDUCTIVITY CONSORTIUM

Mr. Chairman and members of the Subcommittee, my name is Arden Bement and I am the Director of the Midwest Superconductivity Consortium (MISCON), a cooperative endeavor among six leading academic institutions and the private sector. I am submitting to you on behalf of the Consortium a report on the progress of the Consortium over the past year and to request continuing support for Fiscal Year 1997.

Membership of this six-member Consortium includes Purdue University, Indiana University, University of Notre Dame, The Ohio State University, The University of Missouri, and The University of Nebraska. The basic mission of the Consortium is to advance the science and understanding of high-T_C superconductivity and to promote the development of both new materials and improved processing technologies for the commercialization of superconductivity. Focused group efforts, resource sharing and close industry affiliations are key characteristics of the Consortium. The goals of the Consortium are:

a. to develop, utilizing effective group efforts, the scientific and technology foundation for industrial applications and commercialization of high-temperature superconductivity;
b. to facilitate the transfer of technology from the Consortium research laboratories into industry; and
c. to ensure that there is a continuing supply of engineers and scientists trained in this important field.

The programmatic research continues to focus upon key materials related problems in two areas. The first area has a focus upon the **synthesis** and **processing** of high-T_C superconducting materials. The second area focuses on understanding limiting features in the electrical **transport properties** of these materials. Solutions to these problems are essential to industrial developments of components and systems using high-temperature superconductors and to the transport of very high electrical current densities over a range of magnetic fields required of these components and systems.

The two focus areas of research involve twenty-six (26) research projects, thirty-six (36) principal investigators, fifty-three (53) graduate students, thirteen (13) postdoctoral associates, and sixteen (16) undergraduate students. MISCON employs three types of measurements of programmatic success:

1. **National impact:** such as significant scientific achievements, degrees granted, and publications in peer reviewed journals,
2. **Technology transfers:** such as affiliations, visits and other specific interactions that support significant technological developments,
3. **Collaborations:** such as joint research, exchanges, seminars, and shared use of special MISCON instrumentation.

Substantial achievements were made in all three categories during the past year, making 1995 an outstanding year. I would like to highlight the accomplishments in the remainder of my testimony.

Research results under MISCON in the past year were published in seventy-five (75) peer reviewed papers, with twenty-three (23) accepted and twenty-nine (29) more submitted for publication. Furthermore, the participants gave over one hundred thirty-three (133) talks or conference presentations.

MISCON takes special interest in its education **mission to ensure that there is a continuing supply of engineers and scientists trained in this important field.** Nine (9) Doctor of Philosophy degrees, three (3) Master's degrees and two (2) B.S. degrees were granted during the past year to students working on MISCON projects. MISCON graduates continue to be in demand by industry and academia. Of the 1995 graduates, two (2) were employed by industry, two (2) received academic appointments, seven (7) are pursuing post-doctorate training, and the remaining three (3) are continuing their graduate education.

Since the beginning of the program, MISCON has promoted collaborations not only among MISCON investigators but also with investigators in industry, national laboratories, and other universities. Of interest in these collaborations is not only developing and transferring technology but also leveraging research capabilities and productivity within MISCON. These collaborations continued to grow. During the past year alone, MISCON investigators were involved in two (2) MISCON group meetings; a MISCON Summer School on "The Josephson Effect and its Applicability to High-Temperature Superconductors"; eighty-one (81) collaborations with industry, universities and national laboratories; and fifty-four (54) exchanges of samples and measurements.

In order to establish stronger links with industry, MISCON has an affiliates program based on formal, sustained collaborative efforts agreed to by both parties (not fees). Affiliations, technology transfer activities and equipment access agreements were expanded during the year. The number of actively participating affiliates increased to seventeen (17) with the addition of **American Superconductor Corporation** (Westborough, MA), **DuPont Superconductivity** (Wilmington, DE), **Jet Propulsion Laboratory** (Pasadena, CA), and **Plastronics, Inc.** (Troy, OH). The other thirteen (13) affiliates are: **AT&T Bell Labs** (Murray Hill, NJ), **HYPRES, Inc.** (Elmsford, NY), **IBM Thomas J. Watson Research Center** (Yorktown Heights, NY), **Intermagnetics General Corp.** (Guilderland, NY), **Keithley Instrument Co.** (Solon, OH), **Lake Shore Cryotronics, Inc.** (Westerville, OH), **the National Institute of Standards and Technology** (Gaithersburg, MD and Boulder, CO), **Quantum Magnetics** and **Quantum Design** (San Diego, CA), **Ribbon Technology Corp.** (Gahanna, OH), **Superconductive Components, Inc.** (Columbus, OH), **TRW, Inc.** (Redondo Beach, CA), **The Weizmann Institute of Science** (Rehovot, Israel), and **Wright Patterson, AFB** (Dayton, OH).

Examples of joint projects with affiliates are: (1) a project to automate magnetic property measurements between Purdue University and Quantum Design, (2) a project between Notre Dame University and Superconductive Components, Inc. to develop a high temperature superconductor with superior properties for magnetic bearing applications, (3) a project between Ohio State University and Superconductive Components, Inc. Fabricating doped powders for film deposition targets, (4) a project to study the effects of ac magnetic fields on superconducting ac currents between American Superconductor Corp. and Purdue University, (5) a project to study the response of far-infrared on YBCO thin films between HYPRES Corp. and the University of Notre Dame, and (6) a project between Plastronics, Inc. and the University of Notre Dame to produce powder-in-tube $YBa_2Cu_3O_x$/Ag-Pd composite wires. In addition, Purdue University is seeking industry partners for a newly patented process developed under MISCON for producing tubular superconductive tubes to shield sensitive electronic equipment from electromagnetic interference. These interactions keep all participants aware of industry's needs for new knowledge and the current state of commercial technology in high-T_C superconductivity and provide high leverage in introducing MISCON-developed technologies into the marketplace.

MISCON contributed important new materials processing technologies and new understandings of transport behavior in high-T_C superconductors. The following seven "first-time" achievements exemplify the twenty (20) identified as "highly significant" in 1995:

- G. Lafyatis, The Ohio State University, **made the first measurement by an atomic-beam imaging technique of the vortex state in a YBCO crystal.**

- S-H Liou, University of Nebraska-Lincoln, **fabricated (Hg,Tl)-1223 films with the highest T_c (133K at onset) yet reported for a superconducting film.**

- D.G. Stroud, The Ohio State University, **made the first calculation of the fluctuation magnetization in a high-T_c superconductor in excellent agreement with experiment.**

- E.P. Kvam, Purdue University, **demonstrated for the first time the ability of growing high-quality, biaxially-aligned, thin films of YBCO with distinctly different in-plane directions.**

- T.R. Lemberger, The Ohio State University, **made the first observation of two superconducting transitions in the exclusion distance for films composed of several alternating layers of Bi-2201 and Bi-2278.**

- K.H. Sandhage, The Ohio State University, and P.J. McGinn, University of Notre Dame, **developed a new method for fabricating YBCO/noble-metal microlaminates which takes advantage of the malleability of mixtures of yttria and barium powders.**

- H.A. Blackstead, University of Notre Dame, **observed for the first time dissipation from Josephson vortices in (Y,Pr)BCO.**

In accordance with MISCON policy, all fourth-year projects and all new proposals are reviewed by an independent external peer review panel. The 1995 peer review was conducted by ten (10) outstanding experts in the field of high-T_C superconductivity. Project decisions were then based on the results of this peer review. Prior to the review, one existing project was withdrawn: the goals had been completed. Consequently, seven fourth-year projects and eight new proposals were submitted to this outside panel for review. As a result of the panel's review, the seven ongoing projects were renewed and one of the new proposals was funded at a reduced level for the first year for a total of $85,000 for new starts. The peer review scoring is based on the NSF method which scores according to "excellent", "very good", "good", and "reject". The average score of all projects, as determined by the expert reviewers, is near the midpoint between "excellent" and "very good".

MISCON was appropriated $3.2 million in FY 1996. This level of funding along with carryover funds from FY 1995 will enable the Consortium to sustain its current projects and to support one new project for the University of Nebraska, the newest member of the Consortium (added in 1994).

We are requesting $3.5 million for FY 1997. This level represents an increase of $300K (9.4%) over the $3.2 million appropriated in FY 1996. The requested funding increase will permit a 3% cost-of-living adjustment for continuing projects ($68K), new instrumentation ($150K) that has high leverage for the consortium, and augmentation funds ($82K) for projects that show high technological promise.

We appreciate the support of the Subcommittee and look forward to continued progress towards the utilization of these new and exciting materials. Thank you, Mr. Chairman, for the opportunity to present MISCON's progress report and its funding request to the Subcommittee.

LETTER FROM MYLES BRAND, PRESIDENT, INDIANA UNIVERSITY

February 13, 1996

The Honorable John T. Myers
Chairman, Subcommittee on Energy
and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, D.C. 20515

Dear John:

I am pleased to write in support of the continued funding in FY 1997 for the Midwest Superconductivity Consortium (MISCON) by the House Appropriations Subcommittee on Energy and Water Development.

MISCON is a leader in research and development of high temperature superconductivity technology, and promotes collaborations among engineers and scientists in industry, national laboratories, and other universities. Its work highlights the value of research partnerships between universities and industry for the advancement of science and technology.

A goal of MISCON is to contribute to the national economy by facilitating the transfer of technology from research laboratories to industry. Moreover, the commercialization of the technology promises significant global trade advantages. For these reasons research and development in superconductivity is consistent with our nation's interest.

The projects at MISCON undergo rigorous peer review by independent experts from academic institutions, industry, and federal laboratories. This review process ensures that technologically sound projects of high potential are conducted by MISCON. The work carried out by MISCON has a high potential for contributing to a strong economy in the midwest, and to competitive advantages for the United States in the global marketplace.

I urge you to give positive consideration to the continued funding of MISCON.

LETTER FROM GEORGE A. RUSSELL, PRESIDENT, UNIVERSITY OF MISSOURI SYSTEM

February 8, 1996

The Honorable John T. Myers, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, D.C. 20515

Dear Congressman Myers:

On behalf of the University of Missouri, I am pleased to express my strong support for the important work of the Midwest Superconductivity Consortium. MISCON is one of the major sources of new understanding, new technologies, and new techniques for learning how to use superconductive materials effectively. MISCON cooperates closely with industries exploring applications of high temperature superconductors. It is one of very few multi-university consortia in the country that have found effective ways to leverage their resources by providing both research results and research talent to industry.

I believe it is essential that the U.S. retain its current strong position in superconductivity research by maintaining strong federal support. Furthermore, I am convinced of the importance of maintaining the productive university research infrastructure that we now have in place in the Midwest. Thank you in advance for your continuing support of MISCON.

LETTER FROM L. DENNIS SMITH, PRESIDENT, UNIVERSITY OF NEBRASKA

February 19, 1996

The Honorable John T. Meyers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2302 Rayburn House Office Building
Washington, D.C. 20515-0114

Dear Chairman Meyers:

On behalf of the University of Nebraska, I am writing to express support for the activities of the Midwest Superconductivity Consortium ("MISCON").

The University of Nebraska is a relatively new member of MISCON, but I have been impressed with what I have learned about the important work of this consortium. The kind of research conducted by faculty at the six participating Universities is critical to efforts by the United States to be a leader in the development and commercialization of high-temperature superconductivity. The University of Nebraska is pleased to be able to contribute in this area through participation in the consortium. MISCON provides a successful model for a collaborative approach by industry, universities and the government.

MISCON is a government investment that offers positive and substantial returns, and I hope that your Subcommittee will continue to support its activities.

LETTER FROM REV. EDWARD A. MALLOY, C.S.C., PRESIDENT, UNIVERSITY OF NOTRE DAME

February 7, 1996

Chairman John T. Myers
Subcommittee on Energy and Water
Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, D.C. 20515

Dear Chairman Myers:

Government, industry, and the academic communities must each respond to the challenges with all of the talents and resources that are available to them in order to revitalize the United States economy. No single sector can achieve the success that the combined efforts will achieve.

The Midwest Superconductivity Consortium (MISCON) is one example of how six regional universities have joined together with industry and government to support an important, emerging technology area. The focus of MISCON is to develop the science and technology of high-temperature superconductors, facilitate the transfer of these technologies to industry and, perhaps most important, educate the next generation of men and women needed to continue progress in this technology.

MISCON Director, Dr. Arden L. Bement, Jr., has the opportunity to give testimony before your Committee on the details of the Consortium's recent activities. As you will see from Dr. Bement's remarks, it has been a busy and productive time for MISCON. We look forward to an even more successful future.

LETTER FROM E. GORDON GEE, OHIO STATE UNIVERSITY

February 21, 1996

The Honorable John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Myers:

I am writing to express our continued support for the research activities of the Midwest Superconductivity Consortium. We must stimulate new technologies to develop competitive industries. And we must continue to invest in the basic research that has made America a leader in science and technology. We believe that the Consortium contributes significantly to both these goals.

By strengthening superconductivity research, the Consortium represents an investment and a collaboration in the best sense. It has provided critical funds for research projects and has advanced the training of students in this important field. Further, the interactions that have developed among faculty and students from various universities and industry researchers are a model for university/industry collaborators. These partnerships will help us successfully explore new frontiers that will contribute to the nation's economic prosperity and competitiveness.

The investment in MISCON is an investment in our country's future. We encourage continued federal funding for this important initiative.

LETTER FROM STEVEN C. BEERING, PRESIDENT, PURDUE UNIVERSITY

February 7, 1996

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear John,

On behalf of Purdue University, I would again like to express support for the activities of the Midwest Superconductivity Consortium. We all recognize the tremendous potential that superconductivity could have in providing solutions to many current technological problems. To advance this technology, a necessary step is to understand the phenomena so that one could manufacture desired components for applications.

The complexity of the problems to be solved make it fruitful for cooperative activities among a wide range of interested parties. Such an approach indicates focused group efforts and the sharing of resources is necessary for the development of the scientific and technological foundation for the commercialization of high-temperature superconductivity. Further, the integration of the research work of the universities with the application needs of industry can facilitate technology transfer. In the international market of today, this coordination of efforts is a vital factor in success.

This Consortium brings to bear these multiple efforts to seek solutions for the future, and we at Purdue University are proud to be a part of the activities. With your continued support, we look forward to success in our goal to promote the applications of these exciting new materials. Purdue University plays a pivotal role in this Consortium and it has the full backing of my office.

LETTER FROM DR. ALEXIS P. MALOZEMOFF, CHIEF TECHNICAL OFFICER, AMERICAN SUPERCONDUCTOR CORP., WESTBOROUGH, MA

February 9, 1996

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Chairman Myers:

I urge your support for the MISCON program. Many elements of this program have been valuable to American industry. One example is the work of Prof. McElfresh at Purdue University in investigating the static and dynamic behavior of flux distributions in high temperature superconductors on a local level. This has revealed many important insights which are relevant to the application of these materials in the electronics and power industries.

LETTER FROM ELIE K. TRACK, PRESIDENT, CEO, HYPRES, ELMSFORD, NY

February 8, 1996

The Honorable John T. Myers, Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers:

I am writing in support of the Midwest Superconductivity Consortium's (MISCON) program in Superconductivity Research. The benefits of this consortium extend nationwide. Recognizing the importance of these benefits, HYPRES - located in the State of New York - has decided to join MISCON as a corporate affiliate in 1994. HYPRES' collaboration with Dr. Ruggiero of the University of Notre Dame is focusing on the physical properties of thin film materials for high performance electronics applications. These applications include advanced technologies for high performance communications networks. The work of the consortium establishes important and sound scientific foundations for progress in Superconductivity. This foundation is essential to progress in the field. Importantly, MISCON's activities accelerate the commercialization of Superconductivity Research, contributing to American competitiveness in this global economy.

Thank you for your consideration of this matter.

LETTER FROM STUART BERMON, PH.D., IBM, YORKTOWN HEIGHTS, NY

February 22, 1996

The Honorable John T. Myers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Myers:

This letter is to express my support for continued funding of the Midwest Superconductivity Consortium (MISCON). Professor M. McElfresh at Purdue University and myself have been collaborating on the study the magnetic shielding capabilities of high temperature superconductors. Magnetic shielding is an important component of many superconducting systems, particularly those incorporating superconducting quantum interference devices (SQUID's) for the detection of minute changes in magnetic fields. The IBM Research Division maintains a continuing significant research effort in this area as well as in the general electrical properties of high-temperature superconducting materials. Current work, under the general direction of Dr. Roger Koch, includes building SQUID based devices for detecting the presence of submarines and land mines, and for studying corrosion effects in metals. An additional SQUID project, being carried out jointly with Quantum Devices, Inc. involves monitoring magnetic fields of the heart to study cardiac function. Future planned projects, for which good magnetic shielding is important, include the detection of explosives and illegal drugs using nuclear quadrapole resonance.

Previously, our efforts in the area of shielding had concentrated on uses at low temperature. Our goal is to expand our understanding to include high temperature superconductors, where the potential applications are much greater. We have provided equipment for the research effort at Purdue University and are providing consultation on experimental design, measurement techniques and interpretation of data. Good progress has been made over the last year by the Purdue group in fabricating tubular shields of high-Tc material (BSCCO) using centrifugal slip-casting and in increasing the tube density using a newly developed hydrostatic pressing process. The work holds great promise of being to provide tubes with a shielding factor and size sufficient for the applications listed above. Scientists here at IBM Research consider the work at MISCON to be important to the work being carried on here and that it is vital for it to proceed.

LETTER FROM ALAN KLEINSASSER, JET PROPULSION LABORATORY, PASADENA, CA

February 21, 1996

The Honorable John T. Myers, Chairman
Subcommittee on Energy and Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Congressman Myers:

I am writing in order to express my support for the superconductivity research conducted within the Midwest Superconductivity Consortium (MISCON). I am leading a small group at the Jet Propulsion Laboratory that is applying high temperature superconductors to addressing NASA needs in of sensors and digital communications. I worked previously on superconducting integrated circuits in the IBM Research Division. In both cases, the available institutional resources were inadequate for completely self-sustaining efforts in superconducting electronics. Yet, in both cases outstanding results have been, and continue to be, obtained by leveraging other internal capabilities and through vital outside collaborations. In this latter capacity, I value my continued association with MISCON personnel, including Prof. M. McElfresh at Purdue University, Prof. L. Greene at the University of Illinois, and with Prof. S. Ruggiero at the University of Notre Dame.

I have been in superconductivity for over twenty years. There has been impressive progress in this time, much of which has been accomplished through collaborative efforts. It is very difficult at any institution to justify or support the wide range of physical and intellectual capabilities required of a sustained effort in this field, and it is only through sustained efforts that magnetometers and submillimeter wave sensors of record sensitivity, voltage standards, and other instruments have been developed. The real capabilities available with superconductive electronics can and will be realized if and only if institutions such as MISCON, which represent an important national knowledge and skills base, receive consistent support. I look forward to continued fruitful interactions with MISCON and enthusiastically urge you to continue support for it.

LETTER FROM JOSEPH P. KEITHLEY, KEITHLEY INSTRUMENTS, INC., CLEVELAND, OH

February 13, 1996

The Honorable John T. Myers,
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Congressman Myers:

We are a leading manufacturer of test and measurement equipment, with a focus on emerging high technology needs of research and industry. Superconducting materials and devices are going to be of important commercial value in the future. We presently make test equipment for this area and work with partners such as MISCON to develop new measurement methods and equipment to characterize superconducting materials and devices.

If the United States is to remain the leader in this field, it is essential that we have organizations such as MISCON who bring together the talents of many institutions in a geographical region and work with industry to commercialize products related to the field. Without such organizations, it will not be practical for industry alone to develop the materials, processes, and testing methods to commercialize superconducting devices.

We urge the Subcommittee on Energy and Water Development of the House Committee on Appropriations to continue funding MISCON in FY1997. This will provide the technology needed to put the US in a leadership position, and provide industry with the needed information and basic research to justify commercializing products in this field.

LETTER FROM B.C. DODRILL, RESEARCH SCIENTIST, LAKE SHORE CRYOTRONICS, INC., WESTERVILLE, OH

Chairman John T. Myers Feb. 19, 1996
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers:

For over 25 years Lake Shore Cryotronics, Inc. has been a world leader in the manufacture and sale of scientific instrumentation used in low temperature materials research. Since 1993, Lake Shore has been affiliated with the Midwest Superconductivity Consortium (MISCON).

In order for the United States to remain competitive and to play a significant role in the research and development and eventual commercialization of high temperature superconducting materials, it is imperative that consortia like MISCON continue to be appropriately funded.

We ask that the House Appropriation Committee's Subcommittee on Energy and Water Development continue its' funding of MISCON for FY 1997 so that MISCON may advance its' mission, thus insuring a prominent US role in the continued development of these superconducting materials.

LETTER FROM MIKE TOMSIC, PRESIDENT, PLASTRONIC, INC., TROY, OH

February 19.1996

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Mr. Myers,

We are writing to indicate our desire to see you to continue to support the Midwest Superconductivity Consortium (MISCON). The continued support of high temperature superconductor research is important to the future of the U.S. economy. As a percent of GNP the Japanese and European community are out spending the U.S.

The MISCON group is performing research that is helping companies like Plastronic Inc. Plastronic Inc. is developing bulk high temperature superconducting wires and tapes for use in motors, generators, transformers, and transmission lines. Through the MISCON projects we are performing cooperative research with Notre Dame University and Ohio State University. We would appreciate our continued support of the MISCON consortium.

LETTER FROM W. BARRY LINDGREN, PRESIDENT, QUANTUM DESIGN, SAN DIEGO, CA

February 22, 1996

The Honorable John T. Myers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Dear Sir:

I write this letter in support of the concept of MISCON and the high level of quality research that is currently being carried out by the members of this consortium. The type of technology transfer opportunities such organizations make available to U.S. industry enhances the competitive advantage of a traditional strength of this country. That is, the superior caliber of basic research done in our private and state-supported university systems.

As a member of the MISCON Industrial Affiliates Program, scientists at Quantum established a close working relationship with researchers in the Physics Department at Purdue University. Technically, our collaborative work has centered around the improvement of commercial instrumentation and test equipment. This has included developing a source in the United States for state-of-the-art electromagnetic shielding that will improve the quality of instrumentation in many fields, from medicine to manufacturing. In addition, there are new, high-resolution measurement techniques being developed by members of the MISCON team. Quantum Design is currently negotiating with MISCON a program for which this company will provide financial support.

The fundamental materials science that must be learned in the early stages of these projects would otherwise put this expensive undertaking out of reach for our company. Quantum's association with MISCON provides access to the latest findings in academic research, at some of this country's premier educational institutions.

We fully appreciate the collaboration and technical input from our MISCON colleagues at Purdue and hope that we will have the opportunity to continue this fruitful relationship.

LETTER FROM EDWARD R. FUNK, PRESIDENT, SUPERCONDUCTIVE COMPONENTS, INC., COLUMBUS, OH

February 9, 1996

Chairman John T. Myers
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Building
Washington, DC 20515

Honorable Mr. Myers,

I am writing to ask your continued support of the Midwest Superconductivity Consortium (MISCON) under the leadership of Dr. Arden L. Bement, Jr., Director.

Superconductive Components, Inc. is working on energy storage using the concept of Frictionless Flywheels, which are made possible by superconducting levitation. Although the principle of flywheel energy storage has been known for a long time, the concept of levitation using the high temperature superconductors is new, and is based on technical breakthroughs accomplished at Argonne National Laboratories, and, is being commercially developed by us. The possibilities of storing energy efficiently and economically are very large.

The MISCON group is an important adjunct in helping us pursue our concept of Frictionless Flywheel Energy Storage (FFES). We are a member of this group, and MISCON has also funded on a modest scale, work we are doing that is important to FFES.

I therefore ask your continued support of MISCON.

LETTER FROM ARNOLD H. SILVER, MANAGER, SUPERCONDUCTIVE ELECTRONICS ORGANIZATION, TRW

February 15, 1996

The Honorable John T. Meyers
Chairman
Subcommittee on Energy and Water Development
House Committee on Appropriations
2372 Rayburn House Office Building
Washington, DC 20515-0104

Dear Sir:

I am writing in support of the MISCON research program on superconductivity, and its value to US industry and our nation's research and development efforts to apply superconductive electronics to national priorities in space, defense, and global competitiveness.

We will continue to benefit from the high quality research, collaborative working relationships, and the development of top quality engineers and scientists knowledgeable and skilled in superconductor thin films and devices which are critical to the manufacture and commercialization of superconductive electronics. I believe that this type of research will provide high leverage for the manufacture of quality devices, circuits, and components which will be critical to the new information age.

We look forward to continuing technical achievements and the production of future US industrial R&D employees by the Midwest Superconductivity Consortium.

PREPARED STATEMENT OF DONALD L. KLASS, PRESIDENT, BIOMASS ENERGY RESEARCH ASSOCIATION

This statement pertains to DOE's appropriation request for Biofuels Energy Systems

I am Donald Klass, President of the Biomass Energy Research Association (BERA), a non-profit association headquartered in Washington, D.C. BERA was founded in 1982 by biofuels researchers and companies that are conducting biofuels research. Our objectives are to promote education and research on renewable biomass energy and waste-to-energy systems that can be economically utilized by the public, and to serve as a source of information on policies and programs for our members and industry.

First, I would like to thank you, Mr. Chairman, on behalf of BERA's members for the opportunity to present our position on the Federal funding of biomass research. All of us in BERA commend you and the Committee for your continued support of this program. Your support of biomass research is essential to provide the stimulus to help increase commercialization of biomass energy technologies, to help conserve and displace our valuable, depletable fossil fuels, to address many of the environmental issues that confront our Nation, and to help alleviate the economic problems created because of our dependence on imported oil. As I stated last year to this Committee, biomass energy is the only indigenous renewable energy resource capable of displacing substantial amounts of coal, natural gas, and oil, which alone is responsible for over 40% of our trade deficit. And I again emphasize that many energy analysts believe the Third Oil shock is just around the corner because of instability in several oil-producing countries in the Middle East. However, BERA's members recognize the need to restrain Federal spending. Our Board of Directors has accordingly reduced its budgetary recommendations for FY97 to the minimum critical amount necessary to sustain a balanced research program. We urge the Committee to sustain biomass research funding in accordance with BERA's recommendations. This will permit DOE to maintain a diversified portfolio of research rather than to terminate projects that are on the verge of commercialization by the private sector and to minimize program dismantlement, which was started in FY96 as a result of program reductions.

Specifically, BERA recommends that $76 million be appropriated for biofuels research and development, and industry cost-shared scale-up in FY97. The highlights of BERA's recommendations for FY97 are:

- A balanced research program of feedstock production, biochemical and thermochemical conversion, and technology transfer.
- $49 million for research and $27 million for industry cost-shared scale-up projects using best available technology.
- $9 million for industry cost-shared scale-up of integrated biomass production (at least 1,000 acres per site) and conversion.
- $10 million for industry cost-shared scale-up of advanced electric power generation with biomass fuels.
- $6 million for operation of NREL's process development unit for production of fuel ethanol from low-cost cellulosic feedstocks.
- $2 million for industry cost-shared scale-up of advanced municipal solid waste conversion.
- $8 million for technology transfer and commercialization activities managed by DOE's Regional Biomass Energy Program.
- Updating the multiyear program plan for Biofuels Energy Systems.

Regarding specific DOE budget categories, BERA recommends that funding for FY97 be allocated in the following manner:

Office of Energy Efficiency and Renewable Energy		**Recommended Budget**	
	Area	**Research**	**Scale-Up**
Transportation Technologies	Feedstock Development	$ 7,000,000	$ 9,000,000
	Biochemical Conversion	9,000,000	6,000,000
	Thermochemical Conversion	8,000,000	
	Regional Programs	8,000,000	
Utility Technologies	Thermochemical Conversion	13,000,000	
	Systems Development		10,000,000
Industrial Technologies	Municipal Solid Wastes and Chemicals	2,000,000	2,000,000
All Offices	Capital Equipment	2,000,000	
		$49,000,000	$27,000,000
		$76,000,000	

BERA RECOMMENDS $49.0 MILLION FOR RESEARCH AND $27.0 MILLION FOR CONTINUATION OF INDUSTRY COST-SHARED, INTEGRATED, BIOMASS PRODUCTION-CONVERSION PROJECTS FOR FISCAL 1997

A Balanced Program of RD&D and Technology Transfer

Our recommendations comprise a balanced program of feedstock production and conversion research and technology transfer to the private sector with emphasis on end uses such as alternative liquid transportation fuels, advanced power generation technologies, and innovative municipal solid waste disposal-energy recovery systems having superior environmental benefits and minimal emissions. We also recommend that those industry cost-shared, integrated, biomass production-conversion scale-up projects initiated by DOE in FY95 and completed in FY96 and that are indicated to be both economically and technically feasible be continued in FY97. To avoid disproportionate emphasis on a single transportation biofuel and termination or reduction of other important program components, we urge that all future fuel ethanol PDU and scale-up activities funded by DOE require at least 50% cost sharing by industry starting no later than FY98.

Considerable progress was made by DOE in FY95 and FY96 to transfer research results to the private sector by the development of several Cooperative Research and Development Agreements (CRADAs), the continuation of the scale-up gasification projects (Hawaii and Vermont), the dedication of the process development unit (PDU) for fuel ethanol (Golden, Colorado), and the initiation of 11 feasibility study projects to help select new integrated biomass production-conversion technologies for scale-up. We strongly recommend that those projects which these studies indicate are technically and economically feasible be continued with industry cost sharing in FY97. The BERA Board of Directors also recommends that at least one new project be selected by DOE for scale-up in FY97 from the following conversion technology options: Methanol Production by Best Available Thermochemical Technology, Fuel Ethanol Production by Best Available Biochemical Technology, Electric Power Production from High-Efficiency Biomass-Fueled Gas Turbine or Fuel Cell Technology, Municipal Solid Waste Disposal-Energy Recovery by Best Available Technology, Methane Production from Waste Biomass by Best Available Biological Gasification Technology, and Liquid Fuel Production by Best Available Biomass Pyrolysis Technology. **Whatever conversion technology is chosen by DOE for processing virgin biomass feedstocks, it should be integrated with a 1,000-acre-minimum, dedicated biomass feedstock production system that uses the advanced technology already developed in this program.** These projects should be in addition to the medium-Btu gasification project in Hawaii, NREL's fuel ethanol process under development in the PDU in Golden, Colorado, the medium-Btu gasification process for power production in Burlington, Vermont, and the CRADAs between DOE and industry already in progress. A total appropriation of $27,000,000 is recommended by BERA for these scale-up projects as indicated below for the Offices of Transportation, Utility, and Industrial Technologies.

Detailed analysis of DOE's funding request for Biofuels Energy Systems for FY96 shows line items under the Climate Change Action Plan initiatives of $20 million for the 11 feasibility study projects and $9.226 million for commercialization of industry cost-shared, integrated feedstock-power generation systems in the Utility Sector, and $1.9 million for methane recovery from landfills and $1.984 million for advanced turbine systems fueled by biogas in the Industry Sector. These initiatives can lead to industry cost-shared scale-up work in accordance with BERA's recommendations, but we would like to caution that the projects chosen for funding should not be those based on technologies that industry has already perfected and commercialized such as medium-Btu gas recovery and utilization from landfills or those that industry is already funding on its own. Further, we urge that the next phase of the projects selected by DOE management from the 11 feasibility projects completed in FY96 for continuation be funded in FY97.

In addition, BERA strongly urges that the majority of federally funded biofuels research be used to sustain a national science and technology base in biomass via subcontractors outside DOE's national laboratories. While it is desirable for the national laboratories to manage and coordinate DOE-sponsored research activities, support for independent U.S. scientists and engineers in biomass industries that are unable to fund research, academe, and research institutes will encourage commercialization of emerging technologies and serious consideration of innovative approaches. It will also help expand the professional development and expertise of a broad and diverse group of researchers committed to the advancement of biomass energy technology and alternative fuels.

The following represents BERA's specific recommendations on the research areas and funding levels we urge you to include in the FY97 program.

OFFICE OF TRANSPORTATION TECHNOLOGIES

Biomass Production. Land-based biomass grown and harvested specifically for liquid biofuels represents a long-term approach to energy plantations that can supply large amounts of fossil fuel substitutes. Considerable progress has been made on the efficient production of short-rotation woody crops, and on the growth of herbaceous species for energy and fuel applications. In addition, research on tissue culture techniques and the application of genetic engineering methods to low-cost energy crop production have shown promise. This research should be continued as an integral part of the biofuels research program to develop advanced biomass production methods to meet expanding biomass energy utilization in both the transportation and power production sectors. Conventional production methods are insufficient to supply sustainable biomass energy over the long term. BERA recommends that $7,000,000 be directed to continue biomass production research.

Scale-Up. BERA also recommends that industry cost-shared, scale-up projects chosen by DOE of at least 1,000 acres in size be started to initiate development of large-scale, commercial energy plantations in which dedicated energy crops are grown and harvested for use as biomass resources. After the plantations are established, conversion facilities should be added to develop integrated biomass production-conversion systems. These projects should be strategically located and should utilize the advanced biomass production methods developed from the research conducted to date. Successful completion of this work will help biomass energy attain its potential by providing the data and information needed to design, construct, and operate new, multi-quad energy supply systems for both the manufacture of fossil-fuel substitutes and power production. BERA recommends that this scale-up effort be funded at $9,000,000.

Biochemical Conversion. Application of the rapidly advancing field of biotechnology to the conversion of low-cost biomass to liquid fuels such as ethanol has made great progress and should be continued. The successful genetic engineering of the bacteria *Zymomonas mobilis* so that this organism can now ferment xylose to ethanol at the same time as glucose is expected to result in a 10% reduction in the cost of fuel ethanol. Process evaluations by experts have identified key opportunities for early pay-backs with biochemical conversion systems, and new genetic engineering and other emerging biological approaches have made significant advances. Future research should be concentrated on conversion of low-cost feedstocks by high-yield, acid- and enzyme-catalyzed hydrolysis processes, on the development of organisms that can metabolize the hemicellulose components in the feedstocks, and on the utilization of the lignin fractions as octane enhancers and chemicals. Research is also recommended on the use of genetically engineered bacteria that can produce ethanol from low-cost feedstocks at higher rates and yields and on innovative processes for the production of butyl alcohols from biomass for conversion to methyl-t-butyl ether (MTBE) and ethyl-t-butyl ether (ETBE) gasoline additives.

Considerable progress has been made by U.S. researchers to develop biodiesel fuels from natural triglycerides produced by biochemical processes that occur within biomass. This research should be continued with emphasis on the reduction of biodiesel costs and performance characteristics to satisfy the requirements of the EPA and engine manufacturers.

BERA recommends that $9,000,000 be directed to continue biochemical conversion research for transportation applications.

Scale-Up. BERA recommends that $6,000,000 be directed to operate NREL's PDU for production of fuel ethanol from low-cost cellulosics by the simultaneous saccharification-fermentation process. This plant is being operated with a CRADA partner to obtain scale-up data. Numerous arrangements are in place with various industries and communities across the Nation to develop business plans that can result in widespread use of fuel ethanol-from-low-grade-biomass technology. Successful operation of the PDU will establish the technical feasibility of the process and help to confirm that fuel ethanol can be manufactured from low-cost feedstocks at prices competitive with petroleum-based motor fuels. The capital equipment appropriation of $2,000,000 recommended by BERA should be utilized for PDU modifications if needed.

Thermochemical Conversion. Thermochemical conversion research to produce clean-burning, liquid transportation fuels at competitive costs is the prime target of this program component. Laboratory- and pilot-scale research has established the technical feasibility of several advanced liquefaction processes, and basic research has improved our understanding of the mechanisms of conversion. Direct conversion of wood and herbaceous feedstocks via pyrolysis to liquid fuels and their upgrading by advanced catalytic processes to transportation fuels show promise. Continued research is expected to increase the overall liquid yields to the point where the gasoline costs are competitive with those of petroleum-based fuels. Thermochemical liquefaction of low-grade biomass for the production of low-cost fuel ethanol, mixed alcohols, and ethers for use as fuels and octane enhancement also shows promise and merits investigation. BERA recommends that $8,000,000 be directed to continue thermochemical conversion research for transportation applications.

Regional Biomass Energy Programs. Although the Regional Programs are carried out with a broad spectrum of industry in the transportation fuel, electric power, and other sectors, they were recently transferred to DOE's Office of Transportation Technologies for administrative purposes. The Regional Programs established by Congress in 1983 are implemented through five separate regions located in the Southeast, Northwest, West, Great Lakes, and Northeast. These programs have been important in establishing individual state biomass programs, and in stimulating technology transfer and the development and commercialization of the biomass energy industry in the private sector. The Regional Program activities have created awareness and a positive image for biomass energy while providing significant environmental enhancement and creating new jobs - especially in rural areas. **Regional Program activities are typically highly leveraged with industry adding 2 to 4 times the investment of Federal dollars**. One example is the development and installation of low-cost, anaerobic lagoons for treatment of livestock waste and generation of methane. This technology is usable in hundreds of applications and offers combined energy recovery and waste treatment, while capturing and using methane that would otherwise contribute to global climate change.

BERA is particularly interested in promoting the transfer of commercial and near-commercial biomass technology to the private sector, and feels that DOE needs to place more emphasis on this effort. BERA also believes there should be better cooperation and coordination between DOE's Regional Program and Research Program managers to help achieve this objective.

The five Regional Programs should be maintained to stimulate and assist in the development of the biomass industry. BERA urges that $8,000,000 be provided to continue and expand the work of the Regional Programs.

BERA also recommends that DOE be directed to report back to the Committee within 120 days on efforts to strengthen the coordination between the Regional and Research Program components and to improve technology transfer to the private sector.

OFFICE OF UTILITY TECHNOLOGIES

Electric Power Production. Currently, there are about 8,000 MW of on-line electric power capacity fueled with biomass. Development of advanced gasification processes has significant economic and environmental benefits that could lead to further expansion. Continued research on the thermochemical gasification of biomass has resulted in the development of advanced process designs and reactor configurations that maximize product yields and provide optimum product distributions. This work has been performed at the laboratory and pilot scales. Direct coupling of advanced biomass gasifiers to steam-injected gas turbines (STIGS) and fuel cells should be evaluated as potential, high-efficiency power generation systems. An alternative that should also be evaluated is the integration of high-yield biomass pyrolysis liquefaction processes with power generation either in STIGS or combined-cycle STIGS. Research should also be continued to develop reliable hot-gas clean-up methods that can be used with advanced gasification processes. BERA recommends that $13,000,000 be appropriated for this research.

Systems Development. In addition to power production via medium-Btu gasification in Hawaii and Vermont, at least one new industry, cost-shared demonstration project selected by DOE from those recommended by BERA should be started in FY97. BERA recommends that $10,000,000 be appropriated for these efforts.

OFFICE OF INDUSTRIAL TECHNOLOGIES

Municipal Solid Wastes. In combustion research, a need still exists for improved solid waste combustors that meet environmental requirements and cost goals. Research should be focused on systems that can be used for economic disposal of municipal solid wastes in small communities. Research is also needed to reduce the emissions of solid waste disposal processes and to characterize the specific pollutants produced under specific operating conditions. Other subjects needing additional research are the monitoring and control of combustion effluents, metal behavior in ash, and characterization of changing waste streams. Biological gasification of wastes is unique in that the process can directly produce methane, the major fuel component of natural gas, from the full range of low-cost biomass. Research is needed to develop novel systems that permit higher feedstock concentrations and smaller reactor volumes, and therefore lower capital costs. This research is expected to lead to practical methods for economic production of methane from low-cost biomass. And in the case of feedstocks such as municipal wastewaters, low-cost, integrated biomass production-waste stabilization-methane production systems are expected to evolve from continued research.

Chemicals. A wide range of petrochemical substitutes, such as solvents, adhesives, plastics, packaging materials, and chemicals such as organic acids can be manufactured from biomass residues. Research should be continued to develop advanced processes that utilize both thermochemical and biochemical conversion methods as well as advanced physical separation and processing techniques.

BERA recommends that $2,000,000 be directed to continue research on both municipal solid waste conversion and disposal and chemicals from waste biomass and residues.

Scale-Up. BERA also recommends that one demonstration project should be chosen by DOE from those recommended by BERA and initiated in FY96, and that $2,000,000 be provided to conduct this industry cost-shared work.

ALL ENERGY EFFICIENCY AND RENEWABLE ENERGY OFFICES

Program Planning. DOE's multiyear biofuels program was updated in FY 1993. BERA recommends that the plan be updated at least every two years, and that DOE be directed to supply the Committee with an updated program plan within 120 days.

PREPARED STATEMENT OF MARGARET S. MAIZEL, PRINCIPAL INVESTIGATOR, NATIONAL CENTER FOR RESOURCE INNOVATIONS, ROSSLYN, VA

A Cooperative Precision Farming Initiative Under the Umbrella of the DOE/USDA Memorandum of Understanding

The ***National Center for Resource Innovations (NCRI)*** was established in 1990 through a joint private/federal initiative in an appropriation to USDA/Cooperative State Research Service. The consortium now includes six sites, one designated future site, and an Administrative Office in Rosslyn, VA Each site in the consortium provides a unique expertise to this national program. NCRI capabilities include integration of large data sets in a GIS framework from the national level down to the farm field, weather analysis, land use planning, resource management at the state and local levels, and support for public and private policy development. The seven sites are:

1) *NCRI-Chesapeake*: NCRI Chesapeake, Inc., Rosslyn, VA
2) *NCRI-South West*: The University of Arkansas - Fayetteville, AR
3) *NCRI-South East*: The South Georgia Regional Development Center, Valdosta, GA
4) *NCRI-North Central*: The University of North Dakota - Grand Forks, ND
5) *NCRI-North West*: Central Washington University, Ellensburg, WA
6) *NCRI-Great Lakes*: The University of Wisconsin - Madison, WI
7) *Future Site: New Mexico Engineering Research Institute (NMERI)* The University of New Mexico - Albuquerque, NM

The Mission of NCRI

To provide collaborative and innovative transfer of geographic information systems technologies to support local government and other public policy development and decision making.

Precision Farming Cooperative Project

Precision farming is "..*using the right thing*, (fertilizer, chemicals, seed hybrids, and management practices for instance), *in the right amounts, in the right place* (according to soils requirements, topography, and relationship to sensitive resources), *and at the right time* (relative to weather, crop production needs and other environmental conditions, for example)."

On November 2, 1995, the Secretaries of the ***U.S. Department of Energy (DOE)*** and the ***U.S. Department of Agriculture (USDA)*** signed a Memorandum of Understanding for cooperation and coordination in technology research, development, transfer, utilization and commercialization. Each agency sees "growth opportunities for the U.S. economy and the food and agricultural sector, in particular, from such new cooperation."

USDA and its partners recognize that highly precise (within farm-field), broad-spectrum imagery is needed to assess resource conditions, crop production stages and to estimate yields in the U.S. DOE has worked with this imagery for non-agricultural purposes.

USDA also needs to refine regional models for diverse production systems for crop growth assessment, stress detection and pathogen outbreaks. DOE has developed rule-based decision protocols needed by farmers to optimize production systems through precision farming.

DOE wants to understand hierarchical, spatial, GIS-based systems as applied to the environment and agriculture. University-based researchers and USDA know that biological agents (insects, eggs, and plant and animal viruses) are transported at high elevations during growing seasons and under the right conditions can initiate plant diseases. NEXRAD radar contains much of this information which DOE can analyze and manage. Timely provision of selected components from these extremely large data sources is a critical issue in this process.

NCRI seeks endorsement from the subcommittee in its appropriations process. In particular, NCRI seeks $200,000 for FY '97 to work with agencies of DOE and USDA for the planning and technical feasibility assessment phase of a precision farming project. At this level, the New Mexico Engineering Research Institute would be able to participate as a partner with the NCRI consortium in a national project. Upon plan approval, NCRI estimates that $800,000 would be needed the second year to fully implement the new cooperative project.

Background

NCRI is a cooperative, coordinated network with its agenda coordinated through its corporate offices here in Rosslyn, VA. NCRI operates primarily at the nexus of government where field level information systems have been developed, and academic centers where GIS technology and educational techniques are often developed. NCRI's program bridges the widening gap under a mandated reorganization of government. The advantage of a consortium of regional centers is that each site has unique expertise and shares specialized technical support among sites, thereby strengthening the project as a whole through shared resources and experience needed to build complex and comprehensive information systems. Site-to-site technology transfer and networking builds NCRI's overall capabilities, aids in problem solving, facilitates consistency and avoids duplication.

In the next five years, we will move from the age of GIS as a technology needing development to full-fledged efforts for building the needed information systems for decision making itself. Each site in the NCRI consortium brings its own unique knowledge and expertise making the whole organization more the just the sum of its seven parts.

NCRI Site Expertise and Accomplishments

NCRI Chesapeake, Inc. (NCRI-CB) The Chesapeake project, covering all or parts of six states (42 million acres), is a unique cooperative effort between NCRI-Chesapeake, federal and state agencies, universities and others, to meet the objectives of the Chesapeake Bay Restoration Act of 1993. NCRI-Chesapeake is building an hierarchical - national, regional, sub-regional and local decision support system to address agricultural activities within ecosystem environments. In cooperation with the Harvard Lab for Computer Graphics and Spatial Analysis, NCRI-CB pioneered the use of the USDA's National Resource Inventory (NRI) in a GIS framework for agro-ecosystem modeling.

Having focused in early years on a national analytical framework that identified priority watersheds in the U.S. using agro-environmental indices, NCRI-Chesapeake is now building a multi-layer, comprehensive, consistent and coordinated GIS-based capability for resource managers to target technology, funds, personnel and programs upon identified areas of the Chesapeake watershed. Regions where there is a potential for pesticides to leach below the root zone, and areas where excess nitrogen from fertilizer and nitrogen from livestock waste have been identified. We have ranked the 56 subwatersheds in the region according to environmental indices. Environmentally sensitive resources such as wetlands and water bodies that can be directly and indirectly affected by farm chemicals, highly erodible croplands and erosion have been identified and highly permeable potential recharge areas have been found and characterized.

Currently, additions to the system include integrating nitrogen production from septic fields as part of an overall nutrient budget for the region and integrating social and economic characteristics of human populations in the ecosystem in order to better market conservation services by NRCS/USDA to technology consumers. This pilot project in Pennsylvania is to be extended to the entire Chesapeake and then to the nation, as appropriate.

But this is only part of the picture. NCRI-Chesapeake and NCRI-North Central have decided to work together with cooperators at Oregon State University and Michigan State University to exchange expertise on ecosystems, including biological and physical resources and high level weather information for each cooperator's respective region.

University of Arkansas-Fayetteville (NCRI-SW) NCRI-SW has been based at the University of Arkansas at Fayetteville since its inception in May of 1990. Through university support and hardware and software grants, the program has a fully-equipped research, training, and outreach facility capable of demonstrating a wide range of software for geographic information systems, remote sensing, spatial statistics, and database management. In the fall of 1994, expansion of the Center's facilities was completed to include five state-of-the-art teaching and research laboratories, ten offices, and a library/reading room. A variety of advanced computer equipment now facilitates the center's teaching, outreach, and cooperative project capabilities. This equipment includes over 50 high-performance workstations, two multi-processor servers on a fiber-optic network, a full complement of peripherals, software from many different vendors, and a variety of other up-to-date software and equipment. The Center was awarded the title of Center for Excellence by both Intergraph Corporation of Huntsville, Alabama, and Trimbie Navigation, Ltd. of Sunnyvale, California.

NCRI-SW continues to focus on technology transfer through training, the development of statewide GIS databases, and representative projects demonstrating the cost/benefits and efficiency of GIS technology. The NCRI-SW mission has provided an opportunity for cooperation and communication among a multitude of community administration agencies. Great care is taken to assure that projects are chosen, through consultation with the appropriate state and local officials, that will serve the greatest number of rural constituents. During 1994, NCRI-SW participated in numerous projects that have directly benefited state, county, and rural citizens, such as the Catalog of Arkansas Digital Spatial Data, the Rural Infrastructure Mapping Project, the High Accuracy Reference Network Project, the Four County Solid Waste Management Mapping Project, and the Washington County Tax Assessor's Office GIS Project. Rural America 2000 facility which provides no cost access to state-of-the-art GIS equipment to rural governments which are evaluating the adoption of GIS technologies.

In 1996, approximately 130 individuals will attend professional short-courses at NCRI-SW. Classes included were *Introduction to GRASS, Advanced GRASS, Fundamentals of GPS, Advanced GPS, and GIS in Soil Science* These classes were taught in our facilities here on campus and at on-site locations. Students came from diverse backgrounds such as: Cherokee Nation, Arkansas Air Guard, NWA Community College, Benton County 911, Oklahoma Biological Survey, Arkansas Historic Preservation Program, Washington County, Sabine River Authority, NRCS, Corps of Engineers. The number of professional short courses offered will increase from 14 courses offered in 1995 to a total of 20 in 1996.

South Georgia Regional Development Center (NCRI-SE) NCRI-SE's program is an integral component of the South Georgia Regional Development Center - a regional agency that supports local governments across ten counties. NCRI's primary objective is to encourage the use of geographic information for ecologically responsible decision making in this primarily rural region. "Real world" presentations by NCRI-SE using actual local geographic data has proven to be an effective method of demonstrating the value of GIS. This coupled with the experience gained by NCRI-SE personnel from implementing GIS for local governments, has proven invaluable to government managers in the south east region. NCRI-SE also provides direct technical and "hands on" advice and training for any regional entities working in the GIS realm.

One of the most successful programs at NCRI-SE is the Global Positioning System (GPS) program that was established in cooperation with the National Geodetic Survey/NOAA. This program provides data from its GPS Base Station to state, federal, and local agencies within a 300 mile radius. The GPS units themselves have increased the ability of local governments to collect data and make maps at a much lower cost than was previously possible.

This past year, many new GIS projects were started as others from the past were maintained, updated, and expanded. One of the cities that started their GIS project last year is already receiving the benefits of having the data at their own fingertips. They a now in the process of determining what layers of data to add next. Other projects that were started last year are still in the works but will soon be in use by local officials. All of these projects were relatively inexpensive to implement due to our GPS capabilities, use of existing data, experience, and desire to make cost-effective GIS available to our local governments.

University of North Dakota-Grand Forks (NCRI-NC) NCRI-NC's interdisciplinary research and technology transfer programs are located and supported at the University of North Dakota Regional Weather Information Center. From this facility, NCRI-NC is linked to the UND Aerospace Scientific Computing Center which houses a CRAY J90. The resource issues in the region are related to the enhancement and protection of farming and ranching which are principal contributors to the region's economy. The work performed within NCRI-NC and the Regional Weather Information Center has resulted in their being recognized by the Ford Foundation as a semifinalist in the 1995 Innovations in American Government Awards Program.

The NCRI-North Central site is leading a national effort in developing a National Agricultural Weather Information System. This prototype system is directed towards enhancing the use of precision agriculture through a more effective use of weather information. In parallel to the weather information system is the need to incorporate traditional GIS technology on the farm-field level. Currently, NCRI-NC is concentrating on promoting and developing GIS applications at the local and state levels. Current projects include research and development of remotely sensed satellite data to produce products for the agricultural community. Those products are to be made accessible to the general farming community via modem technological means; development of the importation and overlay of UND Doppler radar for Grand Forks County and the surrounding areas; development of the ND volunteer precipitation data base for analysis with land use/land cover for moisture availability and moisture needs assessment; and providing GIS technology assistance to eastern North Dakota and northwestern Minnesota for severe weather tracking and assessment.

NCRI-NC presently participates with North Dakota Governor's Task Force on Geographical Information System Technology Transfer which is attempting to expand the use of GIS across the state. Joint activities have also been developed with the UND Regional Weather Information Center, the USDA Natural Resources Conservation Service (NRCS) and the National Aeronautical Space Administration (NASA) to foster improved use of resources in preparing digital soil surveys.

Central Washington University (NCRI-NW) NCRI-NW continues to concentrate on the local and regional resource issues of the Yakima valley and eastern Washington. These issues include irrigation of agricultural lands, county planning needs, Native American interests, and the management of inter-mixed public and private lands. NCRI-NW works in close cooperation with the faculty and staff of Central Washington University as well as the GIS Lab.

Work continues with the Kittitas Reclamation District (KRD) on irrigation related issues. Digital orthophotography has been used in the study of unauthorized use of KRD water. The next phase of this project is to integrate the results of this study into KRD's GIS. NCRI-NW also works with the Kittitas County Public Works to develop a recreation map of Kittitas County. This has long been a goal of the county, but they have not had the resources to pursue it. With NCRI-NW's assistance and expertise this project is underway. The project will include not only the finished map, but also numerous new GIS data layers for the county's GIS.

Under a cooperative agreement with the USDA/Natural Resources Conservation Service (NRCS), NCRI-NW continues to digitize Washington State soil survey maps. NCRI-NW has been asked to become the distributor of NRCS digital soil survey data.

NCRI-NW continues work with the Yakima Resource Management Cooperative (YRMC) on GIS related projects. Current projects include a complete road map of the YRMC area and revision of the Cultural Resources Task Group's predictive model for pre-historic Native American cultural sites.

University of Wisconsin-Madison (NCRI-GL) The NCRI-Great Lakes project site is located at the Land Information and Computer Graphics Facility (LICGF) at the University of Wisconsin-Madison in the College of Agricultural and Life Sciences. The Facility was instituted in 1983 to function as a research, teaching, and outreach resource in land and geographic information systems (LIS/GIS). Researchers at LICGF explore uses of LIS/GIS for local and regional land and resource planning to support social, economic, and environmental decision-making processes.

Most land records are created, managed, and used at the local level. Information generated from automated land records provides the essential elements of nation-wide spatial database on natural resources. Establishment of uniform specifications and standards for spatial data development in local governments is the basis for a consistent information system development. A major focus of NCRI-Great Lakes is developing a National Spatial Data Infrastructure model for local governments. LICGF's successes in institutionalizing procedures for automating and managing land records led to passage of Wisconsin law implementing a standard across the nation as states struggle to integrate the shared data demands between municipalities, counties, and state activities.

Current research is focused on determining factors that hinder or encourage the implementation of automated LIS/GIS, a survey is conducted annually to monitor adoption and diffusion of LIS/GIS at the county level. This will also be applied at other NCRI sites. A forest resource management system has been developed for a local citizen advisory committee in the Kickapoo River Watershed. Conservation and protection of a Nature Conservancy "Last Great Place" -- the Baraboo Hills -- has been facilitated through cooperation with several partners. A GIS-based "stormwater utility" has been constructed for Marquette, Michigan, to more effectively control the quantity and quality of urban runoff to Lake Superior.

NMERI-University of New Mexico The University of New Mexico (UNM), represented by the New Mexico Engineering Research Institute (NMERI), will be the seventh site in the NCRI consortium. NMERI personnel have been active in the development of New Mexico's state Geographic Information Systems (GIS) standards and the founding of the state's GIS Data Clearinghouse. NMERI has participated in various related committees, task forces, and programs aimed at bringing GIS and related technologies into wider use to solve real world problems. Notable among these are the Governor's Task Force on Water Issues, the New Mexico Information Infrastructure Task Force, and the Animal and Plant Health Inspection Service's (APHIS) National Grasshopper GIS Focus Group. NMERI has and continues to provide public service outreach and technology transfer in the education of GIS and related technologies, applied GIS research, decision support assistance requiring technology integration, and information dissemination technologies to broad audiences. Outreach activities have included: On-site and off-site demonstrations of GIS applications to local government officials, presentations on the use of World Wide Web resources for Rural user needs, Workshops on building GIS based Land Information Systems at the local level, and most recently the statewide coordination for local government participation in a nationally televised conference on Land Information Systems for Local Government: Issues and Interfaces.

Over the last four years NMERI has provided assistance to USDA's Plant Protection and Quarantine personnel in the automation of field survey data collection and near-real time reporting techniques for insect pest management. The methodology developed by NMERI for New Mexico was subsequently replicated for both North and South Dakota. NMERI participation in water resource planning and management issues has involved the development of GIS based applications for rapid retrieval of bibliographic holdings of multiple agencies by geographic units, e.g., communities, counties, and river basins. NMERI's areas of interest for 1996 includes watershed management interests along the US/Mexican Border and continued development of the New Mexico Environment Department's Drinking Water Sampling and Monitoring Information System.

Cooperative Initiatives

NCRI is immensely proud of its unique and effective national program that is producing better resource information systems in collaborative and cooperative efforts. We have accomplished much in our short lifetime and look forward to continuing work for increasingly better public policy and decision making leading to sustainable communities and resources.

We appreciate this opportunity to provide testimony to the Senate Appropriations Subcommittee on Energy and Water Development. *In the interest of providing state-of-the-art technology to food production systems in the U.S., NCRI seeks endorsement from the subcommittee in its appropriations process. In particular, NCRI seeks $200,000 for FY '97 to work with agencies of DOE and USDA for the planning and technical feasibility assessment phase of a precision farming project. At this level, the New Mexico Engineering Research Institute would be able to participate as a partner with the NCRI consortium in a national project. Upon plan approval, NCRI estimates that $800,000 would be needed the second year to fully implement the new cooperative project.*

PREPARED STATEMENT OF REV. T. BYRON COLLINS, S.J. AND REV. WILLIAM L. GEORGE, S.J., ASSISTANTS TO THE PRESIDENT OF GEORGETOWN UNIVERSITY

Mr. Chairman and members of the committee, we are Rev. T. Byron Collins, S.J., and Rev. William L. George, S.J., Assistants to the President of Georgetown University. Thank you for the opportunity to testify on a research, development and demonstration program for hydrogen production through photovoltaic solar regeneration and solid waste mitigation supported by Title II of revised S. 1153 This is a broad based program encompassing and addressing the diverse needs of hydrogen production and waste mitigation throughout the country.

Title I of revised S. 1153, which is derived from HR 655 that passed the House (Representative Walker) and its Senate companion bill, S. 1077 (Senator Harkin and others) is aimed at directing the Secretary of Energy to conduct a research, development, and demonstration program leading to the production, storage, transport, and use of hydrogen for industrial, residential, transportation, and utility applications.

Title II presents the opportunity to demonstrate the feasibility and use of hydrogen as the fuel of the future by demonstrating the following qualities at a site which has a proven record of success with Department of Energy exemplar projects and has the capabilities to integrate the essential photovoltaic array and large heat sink into the project:

- hydrogen production from solid and complex waste mitigation
- hydrogen production from solar regeneration using photovoltaics
- environmentally benign power generation and storage
- clean water production (10,000 gallons per 10 tons of net waste) after recycling
- oxygen production for biomass reforming for fuel cell and medical uses
- carbon monoxide mitigation

Once demonstrated funds for three companion projects in diverse geographic and topographic locations are provided. Locations include Albuquerque, NM, Billings, MT and a site to be determined in Alaska. These sites will greatly accelerate U.S. Commercialization of biomass reformers, fuel cells, superheated steam reformers, electrolyzers and photovoltaics. The advancement of these industries will aid pure water production and waste reduction as well as distributable and expandable power in isolated areas. Public and private utilities would directly benefit by decreasing large long term capital costs of large plants by using clean, distributed, expandable power. This system also produces methanol fuels for transportation.

The authorization in revised S. 1153 for appropriations is $50 million over the fiscal years FY 97 and FY 98 with a matching funds requirement of 50% from non-federal sources. The distribution of these funds calls for $35 million for the main demonstration site and $5 million for each of the three companion sites. We strongly encourage your support of this program.

LETTER FROM KERRY L. SUBLETTE, SARKEYS PROFESSOR OF ENVIRONMENTAL ENGINEERING, THE UNIVERSITY OF TULSA

March 25, 1996

Chairman Pete Domenici
Subcommittee on Energy and Water
131 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

The downturn in the domestic petroleum industry in the last decade has had a serious effect on the economies of oil-producing states and on U.S. energy self sufficiency. In Oklahoma and other oil-producing states, independent producers are going out of business, major oil companies are moving their exploration and production overseas and shutting down refineries, and many highly-skilled and high-paying jobs have been lost.

A major factor in the increasing costs of business in the domestic petroleum industry is the cost of compliance with U.S. environmental regulations. In response to the needs of the oil-producing states and the nation, the three major universities in Oklahoma, The University of Oklahoma, Oklahoma State University, and The University of Tulsa, together with the University of Arkansas, have formed the Integrated Petroleum Environmental Consortium (IPEC). The mission of IPEC is to increase the competitiveness of the domestic petroleum industry through a reduction in the costs of compliance with U.S. environmental regulations. Objectives specific to this mission include 1) the development of new cost-effective technologies to lower the costs of complying with the pollution control and waste disposal regulations, 2) reducing the financial risk to the independent producer in complying with these regulations through improved business practices, and 3) enhancing environmental training at participating institutions to ensure that new graduates, whether they be legal, technical or business professionals, are aware of the environmental implications of their activities on the job.

IPEC is requesting federal support as part of the FY 1997 appropriation for the Department of Energy through the BER account or other source the Subcommittee may determine to be appropriate. The attached written testimony is submitted in support of that request. I want to thank you for the personal interest you have shown in IPEC and our collaboration with WERC. We appreciate your support.

PREPARED STATEMENT OF THE INTEGRATED PETROLEUM ENVIRONMENTAL CONSORTIUM

It is proposed that the U.S. Department of Energy establish and support a focused, university-based program, the Integrated Petroleum Environmental Consortium (IPEC), with the goal of increasing the competitiveness of the domestic petroleum industry through a reduction in the cost of compliance with U.S. environmental regulations. Federal support is specifically requested as part of the FY 1997 appropriation for the Department of Energy through the BER account or other source the Subcommittee may determine to be appropriate.

The Crisis in the U.S. Domestic Petroleum Industry

The availability of energy will be the single most important factor in determining quality of life in the United States over the next century. Jobs, manufacturing output, transportation, and personal comfort are all tied to a plentiful, affordable energy supply. The petroleum industry has played a major role in meeting energy needs in this century. Petroleum will continue to be a major factor in the energy needs of the world well into the next century. However, the declining price of crude oil and the increasing cost of compliance with environmental regulations have combined to produce a decrease in domestic oil production in the U.S. The major oil companies have scaled down their domestic operations and refocused their exploration and production activities on foreign resources. The 8000 independent producers are faced with two options - producing from the domestic resource base or going out of business. At the same time, the independents are increasingly the inheritors of mature fields and reservoirs left behind by the majors. Yet compared to the major producer the independent is the most vulnerable to the declining price of oil and gas, the costs of environmental compliance and unfavorable tax policies. The independent producer has only one source of revenue--the sale of oil and gas. There is no vertical depth to his business. These factors have combined to not only greatly reduce the number of new wells drilled but also to accelerate the plugging of marginal or stripper wells. In the U.S. a stripper well is plugged every 30 minutes. At the same time new well completions are at a 45-year low.

Clearly this trend is not in the best interest of the U.S. in terms of energy self-sufficiency or national security. We are turning over control of our cost of production in terms of energy costs to foreign interests. If domestic exploration and production and refining are to continue to play a strategic role in meeting US energy needs, the domestic petroleum producer will require access to low cost technology for waste minimization and environmental remediation in exploration and production (E&P), refining, transportation and end use of petroleum.

In many cases this technology does not now exist in a cost-effective form. Conventional waste treatment and pollution control technologies always add to E&P, refining and transportation costs. These costs are increasingly out of proportion with the economic output of the petroleum industry. In 1991, four industry sectors (chemicals, petroleum, pulp and paper, and primary metals) incurred three-fourths of the $21 billion spent by U.S. manufacturers to comply with pollution control regulations. However, these sectors accounted for about one-fifth of U.S. manufacturers' value added (Office of Technology Assessment). In 1992, the domestic petroleum industry spent $10.5 billion on the environment. This is more than the top 300 oil and gas companies earned in profits that year and more than the industry spent searching for oil and gas in the U.S. in 1992. With oil at $16 per barrel at the wellhead, the industry spent $4 on environ-mental protection for every domestically produced barrel of oil - $41 for every man, woman and child in America (*Oil and Gas Journal* and the American Petroleum Institute).

All U.S. industry is caught in the conflict between national economic and environmental goals. Pollution control in the petroleum industry presents regulatory hurdles for U.S. domestic production and refining that producers and refiners in many other countries do not face. This places U.S. producers and refiners at a global competitive disadvantage. The U.S. petroleum industry needs cleaner, more cost-effective technologies and new approaches to lower the costs of complying with pollution and waste disposal regulations that U.S. society demands. A reduction in environmental compliance costs will have the greatest impact on the national economy when applied at this level - the level of the extraction industries. Lower energy costs make all industry more competitive. The petroleum industry and the nation would benefit not only from lower compliance costs, but also from the jobs and commerce preserved in the domestic petroleum industry and the related trade in capital equipment and professional services in industries that service the petroleum industry. New technologies for pollution control and remediation will also be an exportable product.

The Integrated Petroleum Environmental Consortium (IPEC)

For strategic and economic reasons the U.S. domestic petroleum industry must be able to compete with foreign producers and refiners. A major sector of our economy and our national interests are clearly at stake. Compliance with environmental regulations is a major factor in that competitiveness. The strategic and economic importance of this industry requires that industry, government and academia combine their resources and coordinate their efforts toward finding solutions for the environmental problems that represent the greatest challenge to the competitiveness of the domestic petroleum industry. The success of this effort will not only stimulate jobs in this industry sector, but also contribute in a large way to the environmental health of the nation. In response to this need, the four major research universities in the oil-producing states of Oklahoma and Arkansas have joined together to form the Integrated Petroleum Environmental Consortium (IPEC). The mission of IPEC is to increase the competitiveness of the domestic petroleum industry through a reduction in the costs of compliance to U.S. environmental regulations. Objectives specific to meeting the goals of the consortium include the following:

1. Development of cost-effective technologies and business practices to meet the challenges of environmental regulations to the competitiveness of the domestic petroleum industry.

As already noted, new technologies are needed in the petroleum industry now to provide cost-effective solutions to environmental problems in exploration and production and refining. The U.S. petroleum industry is already undertaking this challenge; however, the industry needs help. The domestic petroleum industry is devoting ever more of its resources toward meeting a growing body of environmental regulations as the price of oil declines. The inevitable result has been severe reductions in work force and closings. The domestic petroleum industry has lost over 500,000 jobs in the last decade. It is time for the federal government to re-evaluate the regulatory burden on the domestic petroleum industry and to help the industry develop the cost-effective technologies it needs to meet meaningful environmental standards. With a dwindling technical work force caused both by redirecting E&P operations and layoffs, the domestically-oriented work force is increasingly focused on environmental compliance, not technology development. Industry laboratories which were once on the forefront of technology development are now empty and dormant. What is left of the once busy industry research centers are technical service centers. The former research leaders still employed are now "putting out fires" and the independent producers rarely have a technical staff for any kind of R&D. The U.S. petroleum industry is relying more and more on technical professionals in academia for research. However, budgets are tight and only the most immediate of problems are being addressed. Even a 3-5 year time frame is often farther out than the industry can afford to look

The federal government should direct a larger segment of R&D resources to the development of new, cost-effective environmental technologies to support the domestic petroleum industry. A critical segment of this effort should be support of university research. A major part of this research funding should place emphasis on providing near-term solutions to these problems with direct input from the petroleum industry. In partnership with industry, IPEC can help provide these solutions.

The petroleum industry will measure the relevancy of research in terms of the tangible results produced. In the context of the vision of IPEC this means new, cost-effective technology made available to industry. The greatest impact on competitiveness on the domestic petroleum industry will be made by improved solutions to problems which have a significant economic impact on the industry. The research conducted within IPEC will, therefore, by necessity have a strong applied element.

IPEC will use an integrated team approach to technology development. The teams will not only be integrated with respect to scientific or engineering discipline but also integrated with respect to the technology development process itself. In other words the teams will also consist of members whose expertise is in scale-up and commercialization of new technology. If the work product of the team is to make a significant impact in the domestic petroleum industry the most important member of the team will be the end user of the technology. A teaming of investigators from different disciplines and representing different levels of the technology development process will greatly facilitate communication among the investigators and keep the team focused on solving the problem. The team approach is certainly the shortest path to making a meaningful impact on the competitiveness of the domestic petroleum industry.

This team and systems approach to solving real problems in the domestic petroleum industry will be the hallmark of IPEC. Fundamental research will be coupled with bench-scale testing of concepts, pilot testing, field demonstrations and technology transfer. The end user of the technology will always be heavily involved in technology development as an advisor and hands-on participant. As an investment in future technology development, undergraduate and graduate students will be integrated into every aspect of the work of the consortium. Undergraduate students will gain valuable experience working on consortium projects while graduate students will use consortium research work for their theses and dissertations. The integrated approach to technology development will give these students much needed pilot and field experience and industrial contacts.

Competitive business practices are perhaps equal in importance to technology development, especially to the independent producer. The development of new business practices with respect to accounting, taxation, finance, forecasting, etc. are needed which can put the producer in a better position to determine the financial risks of potential environmental costs and manage those risks in order to maximize profitability. Reduced financial risk and growth create jobs.

2. Training of environmental professionals as an investment in technology, policy and business development.

IPEC universities will continue to graduate scientists and engineers who have a strong foundation in a basic engineering discipline, physical science, or biological science with additional training in environmental technologies at the undergraduate or graduate level to produce environmental specialists. Environmental issues cut across many disciplines. Therefore, this additional training is cross disciplinary to give students a broad understanding of environmental problems. This includes environmental law and policy and the financial and economic impact of environmental regulation on the domestic petroleum industry.

Environmental policy curricula at IPEC universities will be enhanced to include a prerequisite foundation in a field of engineering or science. Those who shape environmental policy should fully understand the impact of those policies. IPEC universities also will develop new curricula to explore the boundary between environment and business in terms of accounting practices, economics, finance and taxation. A new kind of environmental specialist, invaluable to the petroleum industry, can arise out of the area where issues of environment and business converge.

In addition to training the environmental specialist, IPEC universities are committed to making all of their graduates environmentally aware. This is especially true of graduates in technical fields whose employment activities can have a direct environmental impact. These curricula will be enriched with an environmental component integrated into their course of study. The result of this enrichment will be a scientist or engineer who considers the environmental impact of a project up front and minimizes wastes.

3. Dissemination of information regarding technology development, legal and regulatory issues, and business practices which can impact the competitiveness of the domestic petroleum industry

Research results from all IPEC technology and business practice development projects will be documented through standard DOE reporting procedures. IPEC investigators also will deliver papers and contribute journal articles on noteworthy achievements. All resulting citations can then be picked up and disseminated through such standard online databases as DOE's "Energy Science and Technology", the American Petroleum Institute's "APILIT", and TU's "Petroleum Abstracts".

IPEC also will provide a central repository for all reports, papers, and articles resulting from its research projects. These documents will be available on demand from the repository for the fulfillment of external orders. Where appropriate, IPEC research results also will be compiled into databases for nationwide access via Internet. Information concerning the databases will be distributed to the domestic petroleum industry and other interested users through exhibits at selected conferences, the trade literature, target mailings and Internet Listserv messaging. Every effort will be made to guarantee equity of access throughout the petroleum industry. IPEC also will establish a feedback mechanism through which the major and independent oil and gas producers can inform the R&D community of their experiences with new technologies as well as their technology needs.

IPEC also will serve as a resource for Congress, federal and state regulatory agencies and the domestic petroleum industry to provide an objective assessment of existing or proposed environmental regulations on the basis of cost/benefit and risk analysis.

Lastly, there also is an acute need for readily accessible continuing education opportunities for scientists, engineering, legal professionals, accountants, economists, etc. in the petroleum industry to provide environmental retooling and continual updating. The environmental field is progressing rapidly. Activities such as focused environmental seminars, workshops, short courses, telecourses, etc. can sharpen the skills of participants and act as conduits for new ideas and technologies into the petroleum industry.

Organization and Operating Practices of IPEC

The Integrated Petroleum Environmental Consortium (IPEC) is a consortium of four universities in Oklahoma and Arkansas: The University of Tulsa (TU), The University of Oklahoma (OU), Oklahoma State University (OSU), and The University of Arkansas (UA) at Fayetteville. The fiscal center of IPEC will be the University of Tulsa which is the sole subcontractor to BDM-Oklahoma which is the M&O contractor for the Bartlesville, OK Department of Energy facility, the National Institute for Petroleum and Energy Research (NIPER). Through NIPER, BDM Oklahoma and TU are responsible for implementation of the National Oil Program for the DOE. IPEC will be an extension of this effort.

The operational activities of IPEC will be directed by an executive committee composed of two faculty members and one research administrator from each of the four universities (TU, OU, OSU, UA). The chair of the executive committee will rotate annually among TU, OU, OSU and UA. IPEC will be very much industry driven to ensure that the consortium is meeting the needs of the industry and fulfilling its mission. The executive committee will be advised by an industrial advisory board composed of technical, legal and business environmental professionals from major oil companies and independent producers. The industrial advisory board will have the last word on funding decisions for technology development projects. If, in the opinion of the advisory board, a proposed project does not help fulfill the mission of the consortium the project will not be funded. All four of the IPEC universities have signed a memorandum of understanding forming IPEC and agreeing to this organizational structure.

The South-central Environmental Resource Alliance (SERA)

In order to bring additional resources into IPEC and further ensure the success of its programs, IPEC has entered into an alliance with the Waste-management Education and Research Consortium (WERC). WERC was established through DOE sponsorship to expand the nation's capability to address waste management issues through education, technology development and technology transfer. WERC's special niche is radioactive, hazardous and solid waste management. WERC's members are New Mexico State University, University of New Mexico, New Mexico Tech, and Navajo Community College in collaboration with Sandia National Laboratories and Los Alamos National Laboratory. The missions of IPEC and WERC will be enhanced by a synergistic collaboration between the two consortia as the South-central Environmental Resource Alliance.

Funding of IPEC

IPEC is seeking appropriations of $4 million for FY 1997 and the succeeding fiscal years 1998, 1999, 2000, and 2001 through the Department of Energy. The consortium will be responsible for private sector and state support of no less than 25% of federal appropriations in FY 1997 and an average of 50% of federal appropriations over a five year period. The consortium will be subject to review as of September 30, 1998 and each 12-month period thereafter to ensure the effective production of data, regulatory assessments, and technology development meeting the stated goals of the consortium.

PREPARED STATEMENT OF DR. THOMAS D. WAITE, COLLEGE OF ENGINEERING, UNVERSITY OF MIAMI, FL

Waste generation by health care institutions is substantial and is certain to contain material derived from patients who are infected with disease-producing agents. Many of these infections are, in fact, caused by agents that are usually considered to be opportunists rather than human pathogens. However, the public perception is that these agents must be a hazard because they are causing disease to humans.

Although the generation of potentially infectious waste material has been a necessary function of health care provision since Hippocrates, it is only within the past few years, with the advent of the AIDS epidemic and the hysteria surrounding medical wastes washing up on the nation's beaches, that prior

treatment to disposal of this very sensitive waste stream has become an issue of grave concern and expense for its generators, and anxiety for the public in general. With the public's eye focused intently on our shores, local, state and federal regulatory agencies have been directed by events, their constituents and consequences to react by passing legislation that address problems associated with the approximately 600,000 tons of infectious waste generated annually by the U.S. health care industry.

The result of these regulatory initiatives has been the passage of a complexity of laws and guidelines, which though different, and sometimes conflicting, basically direct the nation's health care providers, the Miami Medical Complex[1] being a major one, to handle their infectious, now referred to as "regulated medical", wastes in a manner that would protect their own employees, sanitation workers, and the public at large from risks of exposure. No longer are items such as pathological waste, cultures and stocks of etiologic agents, blood and body fluids, sharps, and contaminated animal wastes among others, be disposed of without special handling, packaging, treatment, and manifesting specific to disposition site.

Further, measures such as the Clean Water Act and the Clean Air Act, particularly as articulated in the recently released emissions guidelines for new and existing medical waste incinerators, required that treatment and disposal be done with minimal negative environmental impact, with special focus placed on such potentially harmful air emissions as HCL, SO_2, NOx and dioxins, and liquid discharges such as chlorine.

However, noting that:

- medical waste incinerators are the main cause of dioxin buildup (a potentially dangerous health hazard) in the atmosphere and that increase health care cost is directly tied to increasing incineration costs, which will substantially hiked this year because EPA regulations are being imposed, and that
- the vast majority, upwards of 90%, of these regulated medical wastes are being burned, either in the 3,500 to 5,000 on-site medical incinerators, or at the 115 commercially operated regional facilities that have grown up around the country, and that
- many, if not most of these units will not meet new guidelines as established by the EPA (the Agency estimates that as many as 80-90% of existing systems will be required to either shut down or upgraded at a considerable expense in order to meet published standards), and that
- in most cases, the economically disadvantaged sectors of the population are disproportionately impacted by the dangerous emissions from medical waste incinerators, and that
- public perception of incineration as an acceptable alternative for medical waste treatment is, by and large, extremely negative

there is a permanent solution. The paramount objective of the research group at the University of Miami is to implement one such full scale demonstration facility at the Miami Medical Complex.

Over the past few years, researchers at the Laboratories for Pollution Control Technologies of the College of Engineering at the University of Miami in collaboration with Jackson Memorial Hospital, have been working on a non-burn treatment technology. Based on the experimental work completed to date, this approach, although still in the testing and developmental stages, renders simulated infectious medical waste (red bag) both thoroughly disinfected and totally unrecognizable through a combination of advanced shredding and high-energy electron-beam technologies. The work being undertaken for the 1996 fiscal year is supported by a grant through the Office of Health & Environmental Research in the Department of Energy (award no. DEFG0595ER62086). Dr. Thomas D. Waite is the Principal Investigator of this research project.

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[1] The "Miami Medical Complex" is a group of area hospitals comprised of Jackson Memorial Hospital (JMH), Cedars Medical Center and Veterans Affairs Medical Center, in addition to approximately twenty (20) other smaller medical institutions such as the University of Miami Medical School, Bascom Palmer Eye Institute, and the Sylvester Comprehensive Cancer Center.

For the project goals to become a reality and the technology to be made commercially available, continued funding in the amount of $1 Million must be made available to the University of Miami in fiscal year 1997. Further, the Federal Government should not be spending money on half-way applications, but should concentrate on permanent solutions. They should use those funds on research for the production and utilization of electron beam irradiation to replace incineration of medical wastes. Then, once and for all, we would solve the interrelated problems associated with the environment, and thus provide a clean and reliable method for the treatment and disposal of medical waste streams.

B. INTRODUCTION

1. Large Scale Demonstration of an Electron Beam Treatment System

Based on experimental and economic studies conducted by the research team at the University of Miami, electron beam irradiation of medical waste, in order to disinfect it to safe levels, has been concluded to be emerging as an attractive treatment alternative prior to disposal as a non-hazardous material. The process is capable of attaining any level of disinfection up to full sterilization by controlling the dosage received by the waste material. Other advantages include nominal electric power requirements, no steam needed, no residual heat in the treated waste, and **no harmful emissions that will destroy our lakes and forests in particular, and our Biosphere in general. Further, the application of this treatment technology adds a bonus, we would also get rid of another environmental hazard caused by incineration of medical wastes: the greenhouse effect.** Disadvantages include high capital cost and the need for material processing for size reduction and to render the waste unrecognizable. However, it is interesting to note that the estimated costs to evaluate the feasibility of electron beam process has compared favorably with current Miami cost per pound for transporting medical waste to a commercial incinerator. **Furthermore, it is noteworthy to mention that if the environmental impact associated with incineration of medical wastes were factored in the analysis, obviously, the electron beam process would emerge, by far, the most economically viable option, even when compared with other available alternatives.**

The technical and economic feasibility of the process has been supported to date primarily through engineering studies. In order for a new technology to be adopted over more traditional approaches to disinfecting hospital waste, it must be demonstrated in a real environment under large scale conditions. Such a demonstration allows the engineering and development of working systems that can be realistically evaluated by the hospital community in particular, and the populace in general.

The fundamental purpose of submitting this statement is to request continued support to complete the research work necessary for implementing one such full scale demonstration facility at the Miami Medical Complex.

C. SUMMARY OF RESEARCH WORK TO DATE

Past and ongoing work undertaken at the University of Miami has examined the type and size of accelerator that is applicable to the medical waste treatment technology, identified regulatory requirements which affect process design, developed feasible material processing alternatives, and identified the characteristics of the waste stream to be treated at the Jackson Memorial Complex. To date, the following tasks, supported by the Department of Energy/Office of Health & Environmental Research Award (Grant No. DEFG0595ER62086) have been or is being completed:

- Leasing agreement between the University of Miami and TITAN BETA for a 8 MeV, 1 KW electron beam machine to be used in the demonstration facility at Jackson Memorial Hospital.
- Engineering design for the shielding structure to house the electron beam and peripheral components for the demonstration facility.
- Bidding for construction of the shielding structure (vault) of the demonstration facility.
- A 4 MeV, 0.6 KW CLINAC 4/100 manufactured by Varian is currently being rebuilt and modified for use in limited on-site experiments at the JMH as part of our current research project. Experiments conducted at this facility and others planned at TITAN BETA's Denver facility will provide additional data for further systematic analysis and improved engineering design.

- Regulatory reviews have been conducted by the research team that has indicated that material processed through the electron beam's system will need to be land filled. Currently, it appears that not only must the waste be disinfected, which the electron beam will efficiently do, but it must also be processed into a condition acceptable to landfill owners and operators.

- Experiments have been conducted at the TITAN BETA's Denver facility, the main focus of which was to demonstrate treatment efficiency in simulated red bag waste and to generate engineering information for the design and installation of a large scale treatment facility -- to be constructed at the Miami Medical Complex.

- Research on the composition and characteristics of medical waste (red bag) at Jackson Memorial Hospital has been completed.

- Several dosimetry experiments have also been conducted to determine the extent of penetration into as-received and shredded red bags by the electron beam technology.

Based on the work completed to date, results have shown that medical waste, whether whole or shredded, received approximately 100 percent of the applied radiation dose for a double-pass operation. **Further, it is accepted that the Bacilla spore is the most difficult micro-organism to remove. However, because of the excellent penetration of the high energy electrons throughout the waste, even this micro-organism was removed at very low doses.** Curve fitting analysis have been performed and the equations obtained for the destruction of the two most difficult micro-organisms, with increasing radiation dosage in kilograys are as follows:

$$\textit{Fraction of Bacilla Pumilus Cells Remaining} = 0.0007888 * e^{(-0.3424 * Dose)}$$

$$\textit{Fraction of Bacilla Subtilis Cells Remaining} = 0.003099 * e^{(-0.5024 * Dose)}$$

Clearly, the experimental analyses completed to date have proven, beyond doubt, that medical waste is not a hinderance to the penetrating power of the electron beam treatment process, the technology to be applied at the demonstration facility at Jackson Memorial Hospital.

D. CHARACTERISTICS OF JACKSON MEMORIAL HOSPITAL

Jackson Memorial Hospital (JMH) is part of a group of area hospitals known as the Miami Medical Complex of which Cedars Medical Center and the Veterans Affairs Medical Center are also part. In addition, there are approximately twenty (20) other smaller medical institutions such as the University of Miami Medical School, Bascom Palmer Eye Institute, and the Sylvester Comprehensive Cancer Center, which are also located in this complex. JMH is a large hospital; the second largest under a single license in the U.S. It is one of the few area hospitals specializing in the treatment of trauma cases, making it one of the busiest hospitals in South Florida. The hospital has a licensed bed capacity of approximately 1500, compared with other hospitals in the state which average about 250 beds. The percent occupancy is also significantly higher than the state average, over 82% at Jackson compared with 67% elsewhere in the state of Florida.

JMH has an on-site biomedical waste incinerator which it currently uses to treat the bulk of its waste. During 1993-1994, over 10 million pounds of waste were incinerated at this facility, with 80% of that waste being generated directly by JMH. The remainder of the waste came from UM Medical School and Bascom Palmer. For this same time period, there were approximately 100 days of incinerator downtime. The Department of Health and Rehabilitative Services (HRS) requires that medical waste not be stored for more than 30 days, so if the incinerator is down for that period of time, then JMH must call a private hauler to collect their waste for treatment and disposal.

E. TASKS TO BE COMPLETED AND THE NEED FOR CONTINUED FUNDING

The following summaries the remaining tasks to be completed under the present funding and those to be undertaken in fiscal year 1997.

Although the aforementioned has shown that the fundamental ground work has been laid, the need for continued funding for fiscal year 1997 is of paramount importance. There still exists a substantial amount of work remaining before the principal objectives of the project are satisfied, the primary one being to have a full scale demonstration facility at the Jackson Memorial Hospital Complex.

Continued support is also needed to finish the construction phases, furnish the facility, and to cover one years work of systematic experimental testing and data analysis. The experimental work will provide well needed information for improved engineering design and equipment selection for this and other similar facilities to be constructed throughout the United States in the near future.

A continuation of support for this project would also demonstrate the Government's commitment, not only to develop an alternative technology to incineration for the treatment of medical waste, but also to emphasize its desire to reduce the buildup of dioxin and other hazardous air emissions to the atmosphere. In such cases, the realized savings could be channelled to the economically disadvantaged sectors of the population by reducing their health care costs, a positive impact.

In closure, the information obtained from this project can form the basis of comprehensive economic studies on the impact that medical waste treatment technologies and waste management options have on the cost of health care, here in the United States and other industrialized nations.

PREPARED STATEMENT OF PROFESSOR DAVID K. WEHE, UNIVERSITY OF MICHIGAN

The U.S. Department of Energy has provided support to the DOE University Program in Robotics during the period FY'87-FY'96 to pursue long range research leading to the:

``development and deployment of advanced robotic systems capable of reducing human exposure to hazardous environments, and of performing a broad spectrum of tasks more efficiently than utilizing humans."

The DOE University Research Program in Robotics (URPR) is an important element of the Robotics Technology Development Program (RTDP) within the DOE EM's Office of Technology Development (OTD). The integration of the DOE University Program in Robotics into RTDP, through the full cooperation of six national laboratories, has strengthened RTDP, and has provided an avenue for the results of university research to find direct applications in problems of vital interest to DOE. This program would like to thank the committee members for their historically strong support.

Request for the Committee

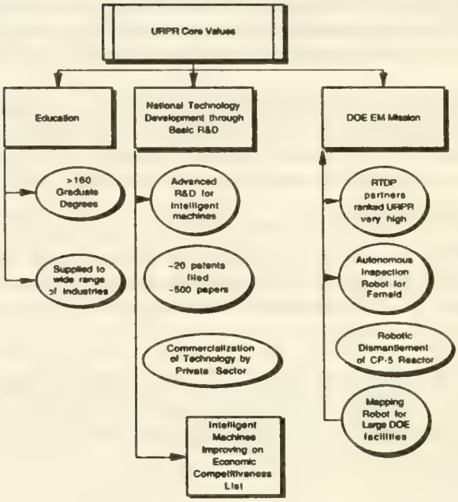
We request that the committee allocate $4 million of the Office of Technology Development (OTD) nondefense research funds to continue the University Research Program in Robotics (URPR) efforts toward the development of safer, less expensive, and more efficient robotic technology for environmental restoration, and waste management.

Developing Advanced Robotics for DOE

Develop robotic solutions for work in hazardous environments

The goal of this program is to utilize and advance state-of-the-art robotic technology in order to remove humans from potentially hazardous environments. Established by DOE in FY'87, the project has produced an impressive array of technological innovations which have been incorporated into the commercial sector. This program has reached an efficient state of technology innovation and is immersed in efficiently educating the technologists and inventing our country's advanced robotic technology of the next century while meeting today's technology needs for DOE.

Core Values


URPR Core Values
Education
National Technology Development through Basic R&D
DOE EM Mission
>160 Graduate Degrees
Supplied to wide range of Industries
Advanced R&D for intelligent machines
~20 patents filed ~500 papers
Commercialization of Technology by Private Sector
Intelligent Machines Improving on Economic Competitiveness List
RTDP partners ranked URPR very high
Autonomous Inspection Robot for Fernald
Robotic Dismantlement of CP-5 Reactor
Mapping Robot for Large DOE facilities

The URPR continues to make a significant impact on American robotic and manufacturing technology in three core areas: education, technology innovation through basic R&D, and DOE mission support.

Robotics: strategic national technology

The Council on Economic Competitiveness compares key U.S. technological capabilities to its international competitors. Of the several strategic areas listed as an *essential need, robotics and advanced manufacturing* was one of a handful listed in critical condition in their initial study. This conclusion was also echoed in the DOD OTA technology assessment report. In addition, the 1991 Office of Science and Technology's (OSTP) National Technology Assessment listed robotics as one of the five most vital strategic technologies for government support. The national need for a concerted thrust in the development of robotics has been universally recognized.

The 1994 update to the Council on Economic Competitiveness Report shows robotics has moved from "loser" up to "weak" when compared with international competitors. The URPR has played a major role in this improvement. Through the production of advanced students and technology, the program has enhanced our long-range international industrial competitiveness. This is seen in the commercial products which have resulted from this work, the role of the graduates of this project in manufacturing, environmental, and educational programs throughout the country, and the applicability of this work to DOE's Environmental Restoration and Waste Management Program and national manufacturing programs.

This progress, if allowed to continue, will jettison the U.S. into the "competitive" leader and predominant force in this international industry.

CORE VALUE: Educating 21st Century Technologists

The URPR has educated about 200 advanced degree students in the critical engineering fields, including many with doctorates. These students have now entered the work force, and are contributing to an industrial resurgence based on intelligent machines and advanced manufacturing technology. Graduates from this project have built successful startup companies in computer vision (MI) and medical imaging (MI), video databases (CA), and intelligent manufacturing (MI, FL, TX). Society has received students educated in vital technology areas at substantially lower costs than using federally-funded fellowships.

CORE VALUE: Innovation

The URPR has produced prodigious levels of innovation in research and development. While current demonstrations reveal next-generation technologies, even more advanced capabilities continue to emerge from the laboratories. These include new types of locomotion (small flying robots, multiple degree of freedom vehicles), navigation techniques, sensing modalities (radiation cameras and laser imaging devices), environmentally hardened components (for temperature and radiation), and dextrous manipulators. These new machines have an unparalleled man-machine interface and inherent intelligence, with the capability of being able to integrate many diverse sensors simultaneously. These devices will become or inspire the intelligent machines of the next century, including smart automobiles and obstacle avoidance aids for the handicapped.

This innovation can also be seen in the following statistics:

o An estimated 20 patents filed. At the last international Mobile Robots conference, 30% of the papers presented cited the fiducial work being performed by the URPR.

o Over 500 technical papers published in technical journals and conferences.

o The URPR robot CARMEL won the National Robot Competition and was awarded the Best in What's New in Technology for 1992 by Popular Science magazine. During the 1993 National Robot Exhibition, two URPR robots worked autonomously and collaboratively to locate, move, and reorganize large objects. This was the first demonstration of autonomous robots working together to accomplish tasks at a national forum.

This project has been heralded worldwide, and praised by Popular Science, CNN News, as well as featured in technical journals, such as the Artificial Intelligence (AI) Magazine. As a measure of our progress, we have taken the results of millions of years of human evolution and squeezed them into an decade of dedication to intelligent mobile machines.

A Side Effect: Technology for Corporate America

In addition to research and education, the URPR contributes to technology transfer. The URPR's research agenda is determined through interactions with the DOE complex. This application-driven research has yielded results, which as a side effect, have lead to advancements in the commercial sector.

The list of URPR technology transfer successes include radiation imaging cameras which can be purchased commercially from RMD, techniques for ultrasonic noise rejection and a multiple degree of freedom vehicle which is marketed by HelpMate Inc. In addition, technology transfer is in process through joint SBIR grants with small businesses (TRC, RMD, Schilling, Bonneville Scientific, REMOTEC, Sopha Medical), and joint research projects (e.g., RedZone Robotics, Inc.).

Private industry still lacks the ability to undertake the long-range R&D programs which lead to these commercial successes. Although problem-specific solutions to DOE problems tend to be too narrow for broad commercial interests, the URPR is particularly proud of its success in transferring innovations into viable commercial products, and will continue to pursue this flow whenever appropriate.

CORE VALUE: DOE Mission Contribution -- Environmental Cleanup

The motives for undertaking a comprehensive research effort in the application of advanced robotics to EM tasks in hazardous environments reflect both economic considerations and health and safety concerns. As part of RTDP, the URPR is contributing to minimizing risks to human health, enhancing workers safety, reducing secondary waste, and protecting the environment. The URPR supports needs-driven applied research to develop innovative and synergistic technologies in support of RTDP thrust areas: Cross-Cutting and Advanced Technology (CC&AT), Contaminant Analysis Automation (CAA), Decontamination & Dismantlement (D&D), Mixed Waste Operations (MWO), and Tank Waste Retrieval (TWR).

During FY'96, the URPR projects involve the:

1. deployment and testing of SWAMI, an autonomous inspection robot for Fernald,
2. design, construction and testing of a robot which can precisely map large DOE facilities, such as K-25, in preparation for D&D,
3. delivery of a robotic handling system for an automated chemical and radiological analysis system, and
4. actual dismantlement of the ANL nuclear reactor CP-5 using ROSIE, a large mobile robot with two 7 degree of freedom arms for heavy-duty manipulation.

Program Request

As part of the D&D effort, robots equipped with advanced sensors and controls are being designed and built to perform surveillance, characterization, decontamination, and dismantlement of high radiation facilities which have been targeted for decommissioning by DOE. During FY'97, we plan to continue our strong support of the DOE EM applications, while continuing our commitment to basic research and education.

Cost Efficient Technology Generation

National policy has focused on economic growth and world leadership in science and technology. In concert with these thrusts, the URPR efficiently integrates education, research, and technology transfer in a natural and effective way. By integrating DOE needs, research, education, and technology transfer as a continuous project process, a new and cost-effective paradigm for DOE programs is being proven.

Program Request

During FY'96, the URPR provided vital contributions to education and research while meeting DOE technology needs. The motivation for this project remains steadfast -- removing humans from hazardous environments while enhancing safety, reducing costs, and increasing productivity. The program has added another university to meet DOE's increasing need for Mission Support, and so we are suggesting a slight increase in funding for FY'97 from $3.5M to $4.0M.

Request for the Committee

To continue this vital program, we request that the Committee include the following language into the FY'97 Energy and Water Appropriations Bill:

The committee allocates $4 million of the Office of Technology Development (OTD) nondefense research funds to continue the University Research Program in Robotics (URPR) efforts to develop safer, less expensive, and more efficient robotic technology for environmental restoration and waste management.

PREPARED STATEMENT OF JOHN W. POSTON, SR., CHAIR, NUCLEAR ENGINEERING DEPARTMENT HEADS ORGANIZATION

Chairman Domenici and Members of the Committee:

This testimony is submitted by John W. Poston, Sr., Chair, Nuclear Engineering Department Heads Organization (NEDHO). NEDHO is made up of the heads of 35 Nuclear Engineering Departments or Programs from universities in 25 different states. On behalf of NEDHO, I wish to thank this subcommittee for its past vision and leadership.

BRIEF SUMMARY OF REQUEST

I am here to present testimony related to the future of nuclear engineering education research, specifically as it relates to education of the future engineers and scientists who will serve in industry and government in this, and closely aligned fields. The Department of Energy's 1996 budget includes $3,500,000 for the following activities: reactor fuel, reactor sharing and utility matching grants. We recommend that the committee allocate $12,200,000 in FY97 for support to cover critical needs in nuclear engineering education and research, including maintaining a strong and viable research reactor capability in the nation. Approximately $6,800,000 represents an investment in nuclear engineering education through research, matching grants with utilities and fellowships, and another $5,400,000 represents support for reactor fuel, reactor sharing and reactor instrumentation upgrades. We also recommend that a single federal agency, the Office of Nuclear Energy, Science and Technology of the Department of Energy (DOE), be designated as the lead agency to oversee the needs of graduate education and research in nuclear engineering at the nation's universities. This testimony is in support of the nuclear engineering education research and fellowship portion of the program.

BACKGROUND

NEDHO consists of 35 departments and programs in U.S. universities, with their principal discipline being nuclear engineering, which involves the design and operation of nuclear reactors and the application of radiation and nuclear techniques to science and engineering. Most of our departments are very broad-based, including disciplines such as health and medical physics, radiation detection and measurement, thermal/hydraulics and materials science related to nuclear processes, nuclear fusion and plasma physics, and the design and performance of fission reactors for the production of electricity. We educate not only the engineers for the nuclear power industry, but professionals such as the health physicists who assist with radioactive waste disposal and environmental restoration activities, the medical physicists involved in cancer diagnosis and treatment, and the materials scientists who develop and test new materials for industry and research using radiation-based techniques.

FEDERAL SUPPORT FOR NUCLEAR ENGINEERING EDUCATION RESEARCH
The federal government has generally looked to the DOE to provide the guidance and support needed for the educational and research activities in nuclear engineering at the universities. The National Science Foundation (NSF) has traditionally deferred support for academic nuclear engineering programs to the DOE. For example, faculty members in other engineering or science disciplines can submit proposals to the NSF (or DOD) for funding of research and educational programs, but nuclear engineering faculty will be discouraged from doing this, with DOE being cited as the appropriate federal agency to support such requests. Prior to FY96 year, the DOE had never embraced this concept and had not provided within its budget, sufficient resources to support these programs at an adequate level. Congress recognized the need for such programs and provided such support at a level of $10,100,000 M from FY90 through FY93. This funding was reduced to $3,700,000 in FY94 and FY95 when Congress ceased support of the research grant program and the DOE failed to incorporate parts of the program into its budget. In FY96 DOE did incorporate some parts of the program into a larger budget request of $6,100,000, but Congress approved only $3,500,000, resulting in termination of the fellowship program.

The Congressionally-mandated programs had provided financial support for a number of activities in nuclear engineering education and research over this six year (1988-1993) period, specifically:

- Research grants
- Fellowships for promising U.S.-citizen M.S .and Ph.D. students
- Industry matching funds initiative that leverages funds from nuclear electric utilities
- Support of operations and modifications of university research reactors.

The following list describes these activities in more detail, except for those related to the research reactors, which are covered in separate testimony from the national organization of Test, Research, and Training Reactors (TRTR):

Research Grants. The research grant program is the first component of the nuclear engineering education program. This program is extremely important because it provides opportunities for faculty and students to explore long-term, innovative initiatives that could have a great impact in applied nuclear science and technology. Projects are performed over two to three years allowing doctoral students the time necessary to complete their research and dissertation as part of the project. In the six years FY88-FY93, over 800 proposals were submitted by faculty involved in nuclear engineering. DOE review panels recommended that 250 of these be supported because of their relevance to the national needs, or their promise of possible major new technological development. Due to the limited funds, only 80 of these recommended grants were actually funded, representing a three-fold shortfall in funds to support the proposals that could significantly enhance the nation's future competitive position in the world markets. This acceptance rate of approximately 10% is a factor of three less than the NSF acceptance rate of close to 30%. Thus, this program was among the most competitive in the nation and resulted in the highest quality research. The following list describes just of few of these projects:

- advanced processes for high level waste disposal (Purdue and Louisiana State),
- advanced lasers utilizing neutrons from nuclear reactors (Illinois and Missouri),
- artificial intelligence systems for enhanced power plant safety and performance (MIT, Ohio State, Penn State, Tennessee, and Texas A&M),
- radiation damage to pressure vessel steels and core components (California-Santa Barbara, Carnegie-Mellon, Illinois, and Michigan), and
- medical uses of neutrons or lasers to cure cancer (Missouri and Georgia Tech).

I estimate that about 250 graduate students, most of whom eventually wrote their theses on the particular research project, were supported in the six years the program was in place. All projects were canceled and the students were left without support when the program was left unfunded in FY94. The loss of this program is likely to have serious consequences when considering the human resource needs by government and industry for nuclear engineering graduates. We recommend reinstatement of the research grant program at the previous level (FY88-FY93) of $5,000,000.

Graduate Fellowships. A second component of the nuclear engineering education program relates to graduate fellowships. These four year student stipends attract exceptionally high quality U.S. citizens to pursue Ph.D. programs. The demand for such graduates exceeds the current supply because of the diversity of areas in which they perform research, from studies of materials and radiation damage to advanced controls and artificial intelligence, to improved understanding of thermal-hydraulic behavior, to the design of radiation detection methods for the protection of personnel. Without the long term financial support provided by fellowships, many of the most capable B.S. graduates will bypass graduate school for high paying industry positions, and their participation in the long-term research and technology developments needed to maintain U.S. competitiveness will be lost.

The supply of highly trained Ph.D.s is becoming more important in a world where nuclear power is gaining increased acceptance in poorer nations where the access to specialized training in reactor safety and radiation protection is limited. It will increasingly fall to graduates of U.S. universities to provide the leadership in the safe, economic and competitive production of electricity by nuclear power around the globe. A shortage of manpower will seriously curtail our ability to meet this challenge. About 40 graduate fellowships, typically covering four years of support for doctoral students, are required to meet the recommendations of the National Academy of Sciences (NAS) to encourage talented U.S. students to enter this field [1]. The FY96 budget did not provide for these fellowships, and as a consequence, there will be no new fellowship competition in FY97. We recommend reinstatement of the graduate fellowship program at the previous level of $1,000,000 which is the level necessary to maintain the supply of highly trained Ph.D.s for industry.

Utility Matching Funds. The third element of the nuclear engineering education program is the Matching grants initiative. This Industry/DOE program provides up to $50,000 per year from industry, matched by DOE, to a university to support nuclear engineering research and education. This innovative and unprecedented program was initiated by nuclear electric utilities who were concerned that academic departments in nuclear engineering would not be able to maintain adequate academic programs to provide the necessary manpower to keep nuclear power as a viable option for providing electricity into the next century. This program is instrumental in promoting stronger ties between nuclear engineering departments and the nuclear industry, and will increase the efficiency in the use of DOE funding through matching money. This initiative also provides enormous flexibility for related activities such as faculty recruitment, which is a costly expense for a department. The program originally included industry grants to 16 departments, totaling about $0.8 M each from the utilities and the DOE. The program was fully funded in the first year, but the DOE contribution was reduced to $0.5 M in year 2. The utilities have continued to honor their full obligation in all four years. We recommend continued support of the program at the current level of $800,000 in the FY97 budget in order to meet the objectives of the Matching grants program.

RATIONALE FOR FEDERAL SUPPORT

Nuclear engineering programs are unique in their blend of engineering and science, and it is unlikely that other disciplines can provide the specialized training and curriculum that characterizes nuclear engineering. [1] It is important that the DOE provide for this relatively modest program in its budget in order to prevent the further decline of nuclear engineering programs and research reactors, thus jeopardizing the goal of preserving the nuclear energy option for the 21st century. Over 20% of the nation's electric power is supplied by nuclear plants for which operation, maintenance and refueling depend on a steady supply of nuclear engineers. The Naval Reactor laboratories (Bettis and KAPL laboratories) and DOE National Laboratories also depend on the graduates from nuclear engineering programs for their future. Furthermore, we note that the influence of the U.S. in the world nuclear markets has declined substantially over the last decade, with other nations now supplying a significant fraction of the nuclear products and services used in the U.S. A case in point is that for the last several years the U.S. has had no domestic source of the important Molybdenum/Tc-99 radioisotopes shipped weekly to 4000 hospitals in the nation for medical and diagnostic uses. As the DOE moves forward to add such capability in the U.S., it should be recognized that to avoid significant further erosion of our domestic capability, and of our export capability, the educational base needs to be strengthened. It is worthy of note that the nuclear electric utilities have recognized the real needs of the industry with their matching grant initiative.

Nuclear engineering education requires the use of expensive equipment, and in addition must compete for faculty and staff with national laboratories and industries that seek experts in these fields. The federal government has long recognized the need for federal support of engineering education, since advances in science and technology lead to substantial gains in productivity and international competitiveness, and federal funding is a critical component in this arena. Such support is primarily provided by the NSF for most technical disciplines. An exception has been nuclear engineering, which has always been handled by the DOE and its predecessor agencies. As emphasized in two reports [1,2] of the National Academy of Sciences (NAS), this federal support is necessary if this nation is to maintain nuclear energy as a viable source of electricity in the next century. The academic programs which provide the human resource base for nuclear power technology have a critical need for such support in order to attract the best graduate students and faculty to work in this field.

NEED TO MAINTAIN THE NUCLEAR POWER OPTION

We are vitally concerned about the future of this nation, and of the world, without nuclear-generated electricity. On a per atom basis, nuclear energy represents a 20,000,000 fold gain compared to fossil fuel combustion, and a similar million-fold drop in the weight and volume of waste products compared to fossil energy. To not develop nuclear power to its fullest economical and commercial extent is to deny civilization a long-term energy source with significant environmental benefits related to improved air quality and reduced releases of global warming gases. An NAS report [3] contains several recommendations which address the need to maintain the nuclear option as a substitute for fossil fuels to mitigate greenhouse warming. The research and educational programs that we are recommending are consistent with these recommendations, which, it should be emphasized, come from a panel of environmental experts with no ties to nuclear power.

Loss of academic departments in NE/RST will mean a loss of the supply of nuclear engineers to *safely* operate and maintain our nation's nuclear power plants which supply over 20% of the total electrical power production in this country. These 110 nuclear plants are scheduled to operate for some 10-20 more years, and the safety concerns of operating these plants without the availability of qualified technical support will become a critical issue. Further, when the plants reach the end of their useful life and must be decommissioned, the nation will be faced with replacing an unprecedented amount of lost power generation over a very short time period. If nuclear energy is to remain an option for replacement power, then the technological know-how needs to be preserved. It is expected that the world's electricity demand will triple in the next 50 years. To not develop nuclear power to its fullest economical and technological extent is to deny civilization a long-term energy source with significant environmental benefits related to improved air quality and reduced releases of global warming gases

If these educational programs are not maintained, many of our brightest students in science and engineering will be deterred from entering this field, since there will be no financial support or interesting research projects in this field to work on. Absence of funding for this program will further exacerbate a manpower shortage for the nuclear industry that is projected for this decade and well into the next century. [1] Nuclear engineering is at the core of a 300,000 person industry that is rapidly aging. For instance, the Institute of Nuclear Power Operations has predicted that in the next ten years, 30% of the current professionals in the field of nuclear power will be retiring. When and if this country decides that additional nuclear power is needed, there will no longer be the expertise or technology to provide it, except by foreign corporations, which stand to benefit substantially as the U.S. abandons its once-leading role in nuclear reactor technology. [4] The irony here is that U.S. light water technology, licensed to foreign countries, may be successfully marketed by these very countries as our nation abdicates its leadership role in developing and utilizing nuclear energy. Indeed, we may become purchasers of our own improved technology (once again!).

The ability of the U.S. to maintain credibility in an expanding nuclear world is another major issue. The inspection of foreign reactors to ensure compliance with International Atomic Energy Agency (IAEA) guidelines and treaty agreements depends on having a staff of individuals trained in the nuclear sciences. The alarming plans for the buildup of nuclear power in southeast Asia and the Middle East would undoubtedly be conducted more safely with the involvement of U.S. know-how, which is not possible without a strong academic infrastructure in NE/RST.

CURRENT STATUS OF JOB OPENINGS

The 35 nuclear engineering departments or programs in our universities and colleges have an enrollment of approximately 2200 students, 1200 of whom are graduate students pursuing Masters or Ph.D. degrees. Of those accepting employment positions in nuclear engineering, about half of these were in the commercial nuclear power industry, and about half with the federal nuclear research and development establishment, primarily at the national laboratories.

Of the latter, it appears that the majority involved environmental restoration activities. The health and medical physics areas have been a very rapidly growing employment field over the last decade, and continued growth is expected.

SUMMARY AND CONCLUSIONS

Nuclear engineering represents a broad and diverse field, encompassing both education and research in a number of critical fields for this nation. It is important for the technological progress of our nation and for the safety of nuclear applications that the nuclear engineering discipline be maintained and adequately supported.

We recommend the continuation of the DOE program with reprogramming of $5,000,000 to reinstate the nuclear engineering education research program in the Office of Nuclear Energy, Science and Technology budget. This program is critical to preserving nuclear power as a viable alternative source of electricity in the next century, as noted by several NAS reports.

We also support the Office of Nuclear Energy, Science and Technology as the proper office to which this program should continue to be assigned.

We thank the committee for the opportunity to present this testimony.

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